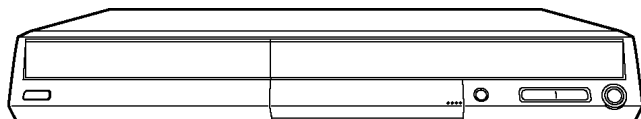


# Service Manual

## DVD Video Recorder



Notes: This model's DVD Drive is VXY1867.

**DMR-ES10P**  
**DMR-ES10PC**

Vol. 1

Colour

(K).....Black Type

(S).....Silver Type

# Panasonic

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# Introduction

This service manual contains technical information which will allow service personnel's to understand and service this model.

Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, this information will be followed by supplement service manual to be filed with original service manual.

1) This service manual does not contain the following information, because of the impossibility of servicing at component level.

- \* Schematic Diagram, Block Diagram and P.C.B. layout of Digital P.C.B.
- \* Parts List for individual parts of Digital P.C.B.
- \* Exploded View and Parts List for individual parts of RAM drive.

2) The following category are recycle module part. Please send them to Central Repair Center.

- \* Digital P.C.B. (ES10P:VEP79104A, ES10PC: RFKBES10PC)
- \* RAM drive (VXY1867)

## Specifications

Power supply	AC120 V, 60 Hz	Input	•LINE (pin jack x3), 1.0 Vp-p; 75 $\Omega$ •S connector x3 Y: 1.0 Vp-p; 75 $\Omega$ C: 0.286 Vp-p; 75 $\Omega$
Power consumption	Approx. 23 W	Output	•LINE (pin jack x1), 1.0 Vp-p; 75 $\Omega$ •S connector x1 Y: 1.0 Vp-p; 75 $\Omega$ C: 0.286 Vp-p; 75 $\Omega$
Power consumption in standby mode	Approx. 8.2 W	Component video output (480P/480i)	Y: 1.0 Vp-p; 75 $\Omega$ PB: 0.7 Vp-p; 75 $\Omega$ PR: 0.7 Vp-p; 75 $\Omega$
Recording system	DVD Video Recording format (DVD-RAM) DVD Video format (DVD-R) DVD Video format (DVD-RW)	Antenna reception input	TV Channel: 2ch-69ch, 75 $\Omega$ CATV Channel: 1ch-125ch, 75 $\Omega$
Optical pick-up	System with 1 lens, 2 integration units (662 nm wavelength for DVDs, 795 nm wavelength for CDs)	Audio system	
Recordable discs	• DVD-RAM: Ver.2.0 Ver.2.1/3X-SPEED DVD-RAM Revision 1.0 Ver.2.2/5X-SPEED DVD-RAM Revision 2.0 • DVD-R: for General Ver. 2.0 for General Ver. 2.0/4X-SPEED DVD-R Revision 1.0 for General Ver. 2.x/8X-SPEED DVD-R Revision 3.0 DVD-RW: Ver. 1.1 Ver. 1.1/2X-SPEED DVD-RW Revision 1.0 Ver. 1.2/4X-SPEED DVD-RW Revision 2.0 • +R: Ver. 1.0 Ver. 1.1 Ver. 1.2	Recording system	Dolby Digital (XP/SP/LP/EP)
Recording time	Max. 8 hours (using 4.7 GB disc) XP: 60 minutes SP: 120 minutes LP: 240 minutes EP: 360 minutes or 480 minutes	Input	LINE (pin jack) x3 Reference input: 309 mVrms FS: 2 Vrms (1 kHz, 0 dB) Input impedance: 47 k $\Omega$
Region number	Region No.1	Output	LINE (pin jack) x1 Reference output: 309 mVrms FS: 2 Vrms (1 kHz, 0 dB) Output impedance: 1 k $\Omega$ (Load impedance: 10 k $\Omega$ )
Playable discs	DVD-RAM, DVD-R, DVD-RW, +R, +RW DVD-VIDEO, DVD-Audio, CD-Audio (CD-DA), Video CD, CD-R/ CD-RW (CD-DA, Video CD, MP3, JPEG formatted discs)	Number of channels	Recording: 2 channels Playback: 2 channels
Video system		Other input/output connector	Digital audio optical output connector
Television system	NTSC system, 525 lines, 60 fields	Others	
Recording system	MPEG2 (Hybrid VBR)	Dimensions	Approx. 430 (W) x 63 (H) x 337 (D) mm [Approx. 16 <sup>15</sup> / <sub>16</sub> " (W) x 2 <sup>1</sup> / <sub>2</sub> " (H) x 13 <sup>5</sup> / <sub>16</sub> " (D)] (excluding protrusions)
		Mass	Approx. 3.6 kg (7.94 lbs)
		Operating Temperature	5 °C-40°C (41 F-104 F)
		Operating Humidity range	10 %-80 % RH (no condensation)
		Clock unit	Quartz-controlled 12-hour digital display
		LASER Specification (Class I LASER Product)	
		Wave Length	795 nm(CDs), 662 nm(DVDs)
		Laser Power	No hazardous radiation is emitted with the safety protection.
		Solder	These models use lead free solder (PbF)

**Notes :** Mass and dimensions are approximate.  
Specifications are subject to change without notice.

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# 1 Safety precautions

## 1.1. General guidelines

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

### 1.1.1. Leakage current cold check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between  $1M\Omega$  and  $5.2M\Omega$ .

When the exposed metal does not have a return path to the chassis, the reading must be  $\infty$ .

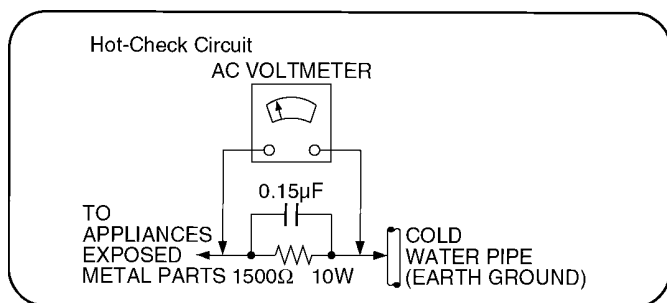


Figure 1

### 1.1.2. Leakage current hot check (See Figure 1 .)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a  $1.5k\Omega$ , 10 watts resistor, in parallel with a  $0.15\mu F$  capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliampere. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

## 1.2. Caution for fuse replacement

(For English)

### CAUTION:

Replace with the same type fuse:  
(Manufacturer: Hollyland, Type: 50T, 1.6A, 250V)

(For Canadian French)

### ATTENTION:

Utiliser un fusible de rechange de même type:  
(Fabricant: Hollyland, Type: 50T, 1.6A, 250V)

## 2 Prevention of Electrostatic Discharge (ESD) to Electrostatic Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatic Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistor-and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

### Caution

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

### IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  $\triangle$  in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

### 3 Precaution of Laser Diode

#### CAUTION:

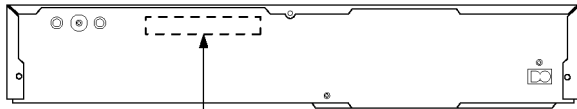
This product utilizes a laser diode with the unit turned “on”, invisible laser radiation is emitted from the pickup lens.

Wave length: 662 nm (DVDs)/795 nm (CDs)

Maximum output radiation power from pickup: 100  $\mu$ W/VDE

Laser radiation from the pickup lens is safety level, but be sure the followings:

1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.



Product complies with DHHS  
Rules 21 CFR Subchapter J in  
effect at date of manufacture.  
Matsushita Electric Industrial  
Co., Ltd.  
Kadoma, Osaka, Japan

#### ACHTUNG:

Dieses Produkt enthält eine Lasereinheit.

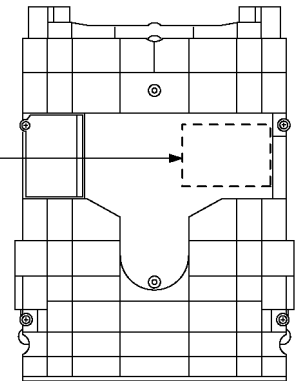
Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

Wellenlänge: 662 nm (DVDs)/795 nm (CDs)

Maximale Strahlungsleistung der Lasereinheit: 100  $\mu$ W/VDE

Die Strahlungen der Lasereinheit ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlines blicken.
4. Nicht über längere Zeit in die Fokussierlines blicken.



DANGER	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. (FDA 21 CFR)
CAUTION	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. (IEC 60825-1)
ATTENTION	- RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNNGÅ UDSETTELSE FOR STRÅLING.
VARO!	- AVATTAESSA OLET ALTTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTELYLLE. ÄLÄ KATSO SÄTEESSEEN.
VARNING	- SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	- SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
注意	- 打开时有可见及不可见激光辐射。避免激光束照射。
注意	- ここを開くと可視及び不可視のレーザー光が出ます。 ビームを直接見たり、照れたりしないでください。 RQLS0233

#### CAUTION!

THIS PRODUCT UTILIZES A LASER.

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

### 4 Handling the Lead-free Solder

#### 4.1. About lead free solder (PbF)

##### Distinction of PbF P.C.B.:

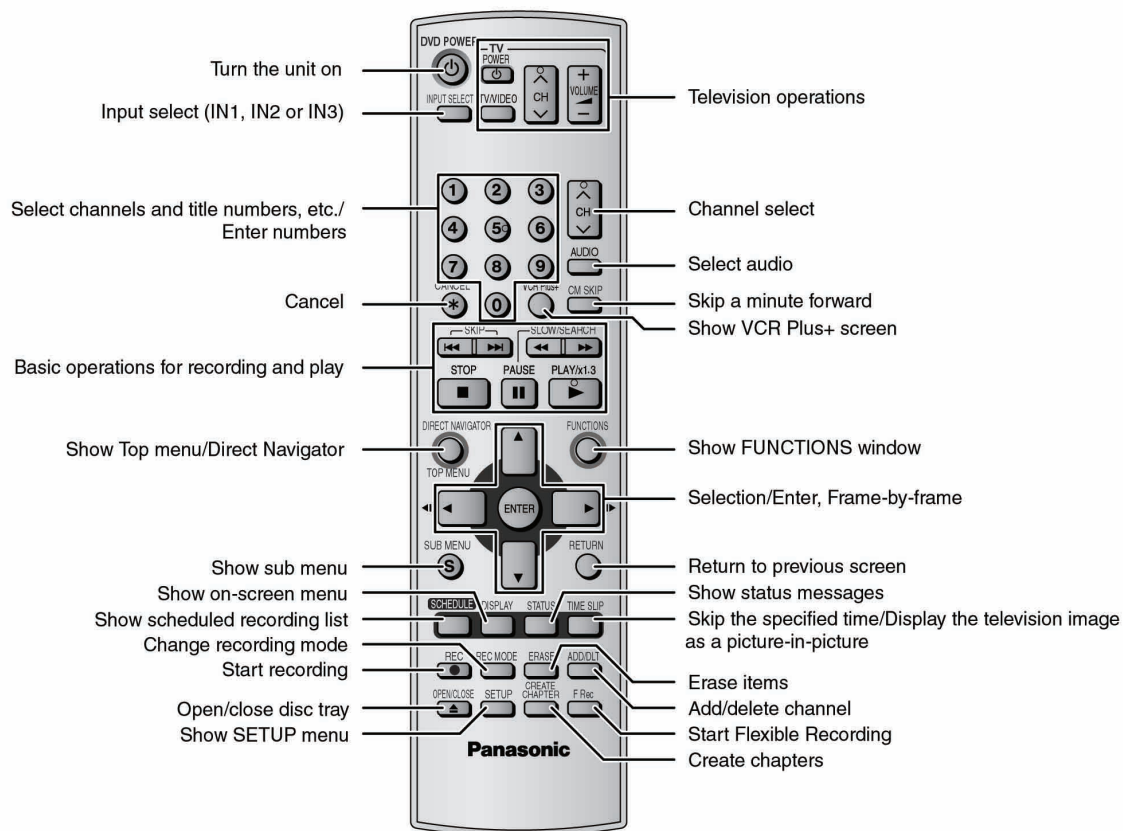
P.C.B.s (manufactured) using lead free solder will have a PbF stamp on the P.C.B.

##### Caution:

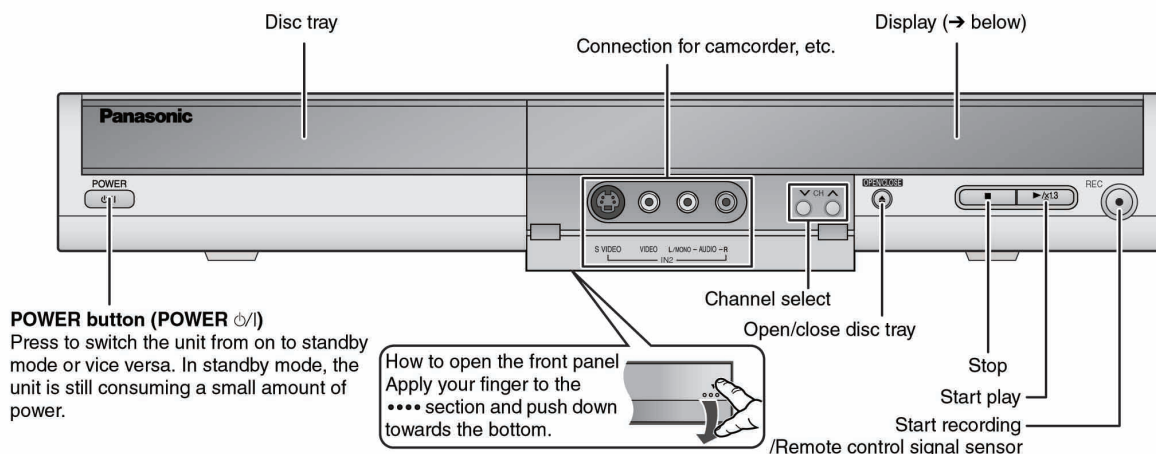
- Pb free solder has a higher melting point than standard solder; Typically the melting point is 50 - 70°F (30 - 40°C) higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 700 ± 20°F (370 ± 10°C).
- Pb free solder will tend to splash when heated too high (about 1100°F/600°C).
- When soldering or unsoldering, please completely remove all of the solder on the pins or solder area, and be sure to heat the soldering points with the Pb free solder until it melts enough.

## 5 Each Button

### Remote control

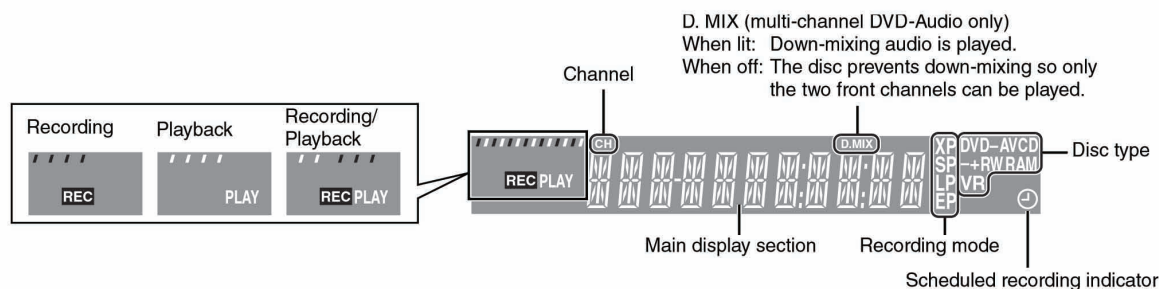


### Main unit



Rear panel terminals

### The unit's display



## 6 New Feature

### 6.1. Quick start function(REC)

#### 1. General

A few seconds after tuning on the unit, you can start recording to DVD-RAM, HDD.

You can switch the operation of this function (ON/OFF) on the menu screen. .

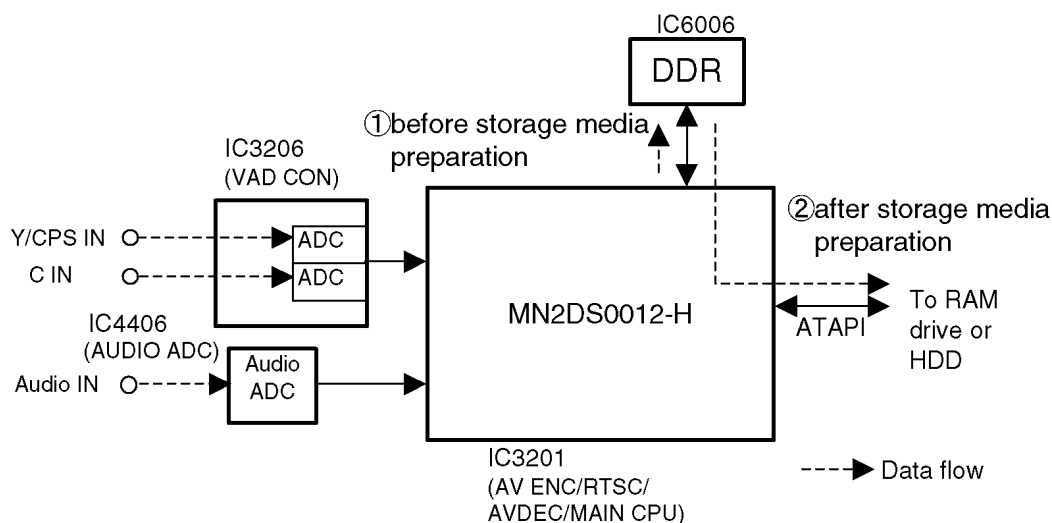
#### 2. Quick start(REC) principle

In the power-off at Quick start, only power supplies for video IC, tuner and storage media are cut off.

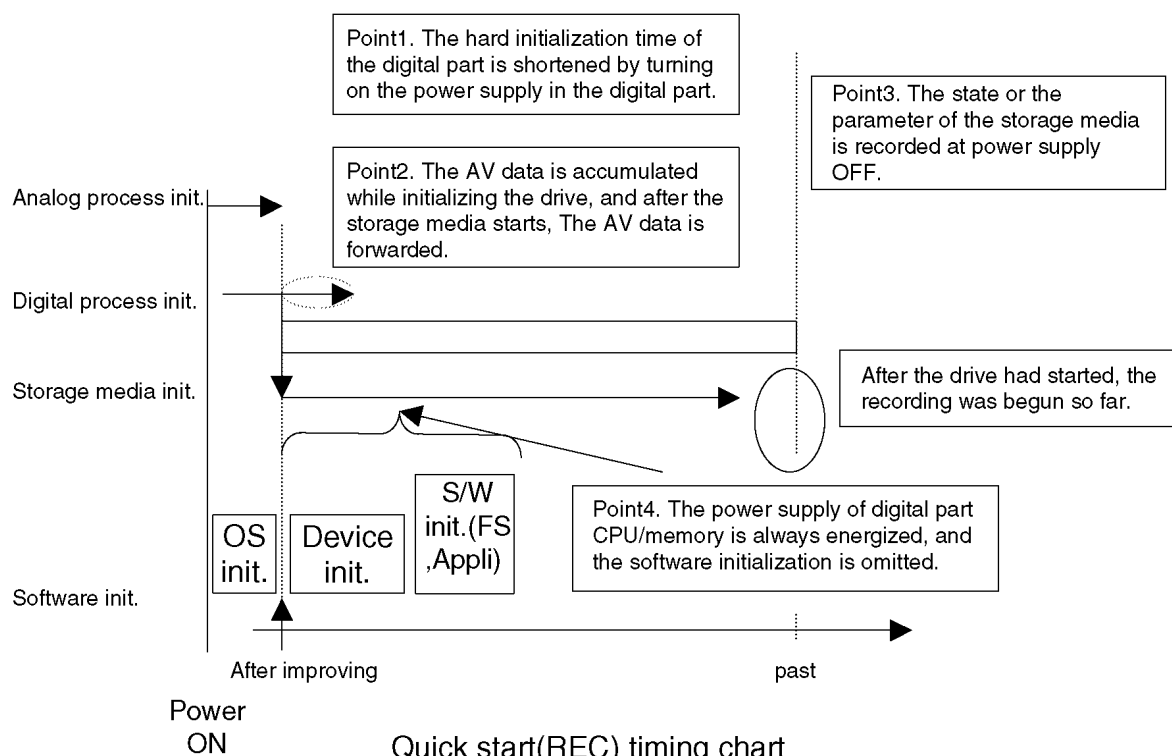
- ① When the REC button is pushed a few second after the power button is pushed, Audio and Video data are stored in DDR SDRAM before a storage media(DVD-RAM or HDD) preparation.

\*Preparation time → DVD-RAM: Fabout 8seconds

- ② After a storage media(DVD-RAM or HDD) preparation, Audio and Video data are transfer from DDR SDRAM to the storage media.



Quick start(REC) explanation chart



Quick start(REC) timing chart



## 7 Taking out the Disc from RAM-Drive Unit when the Disc cannot be ejected by OPEN/CLOSE button

### 7.1. Forcible Disc Eject

#### 7.1.1. When the power can be turned off.

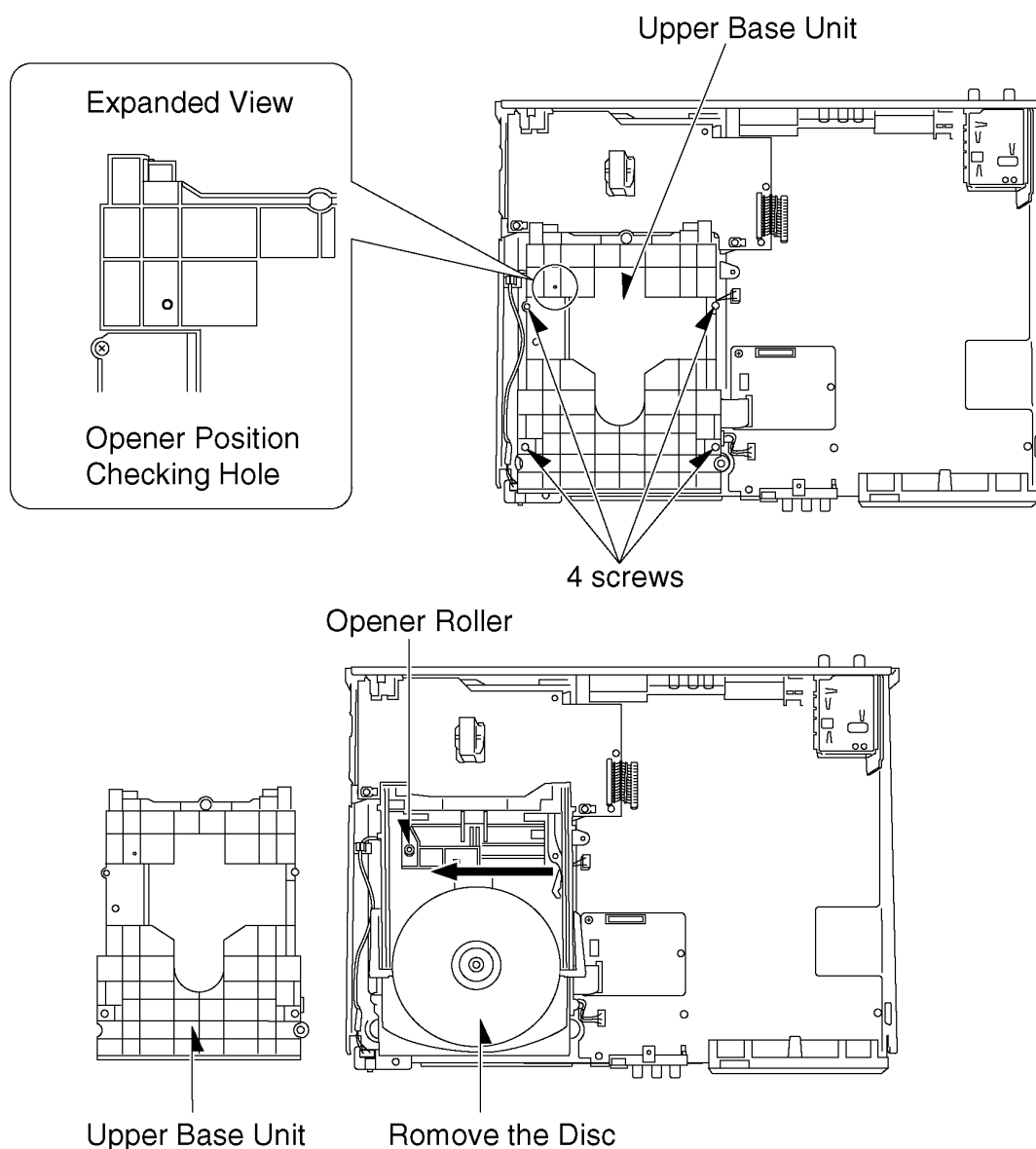
1. Turn off the power and press [STOP] [CH UP] keys on the front panel simultaneously for 5 seconds.

#### 7.1.2. When the power can not be turned off.

1. Press [POWER] key on the front panel for over 10 seconds to turn off the power forcibly, and press [STOP] [CH UP] keys on the front panel simultaneously for 5 seconds.

### 7.2. When the Forcible Disc Eject can not be done.

1. Turn off the power and pull out AC cord.
2. Remove the Top Case.
3. Remove the Front Panel.
4. Remove 4 screws and Upper Base Unit from DVD-RAM Drive.
5. Take out the disc and put the Opener Roller on fully position for direction of Arrow.
6. Put the Upper Base Unit so that the Opener Roller is inserted into the groove.
7. Check Opener Roller is seen through the Opener position Checking Hole, and tighten 4 screws.



## 8 Service Explorer

### Confirm "RAM-Drive Last Error" in Service Mode

#### Execute Service Mode

1. Press [REC], [CH UP] and [OPEN/CLOSE] simultaneously for 5 seconds when P-off.

FL Display:

SERVICE MODE

\*After finishing display "(7). Factor of Drive Error occurring", press [0] [2] ~[1] [9] keys of the Remote Controller so that 19 memories can be displayed as maximum.

2. Press [4] [2] keys of remote controller.

#### Example of FL Display:

- (1) Error Number is displayed for 5 seconds.

NO 01

- (2) Time when the error has occurred is displayed for 5 seconds.

50216191526

The error has occurred at 2005(year)/Feb.(month)/16(day)/19(hour):15(minute):26(second)

- (3) Last Drive Error (1/2) is displayed for 5 seconds.

031000

Error Sense  
Key

{ 00: Bad disc  
03: Bad disc  
04: Bad disc or RAM-Drive malfunction

**When above error codes are displayed, confirm operation with Panasonic RAM disc or Panasonic DVD-R disc.**

**\*If the operation is OK, judge the error is due to media.**

**\*If the operation is NG and symptom as BLOCK NOISES and so on that are particular symptom of Digital appears, judge the error is due to RAM-Drive or Digital PCB.**

- (4) Last Drive Error (2/2) is displayed for 5 seconds.

00 13 00 00

\*This error code is unnecessary for service.

(5) Error occurring Disc type is displayed for 5 seconds.

MEDIAVDR

Disc type

\*The error disc cannot be specified, display as "DVD".

(6) Disc Maker's ID is displayed for 5 seconds.

MXL R 061

Example of Disc Maker's ID:

#### DVD-R Disc

No.	FL Display (Disc Maker's ID)	Disc Maker	Country
1	MEI	Panasonic	Japan
2	PVC	Pioneer	Japan
3	MCC	Mitsubishi Chemical Corporation	Japan
4	TDK	TDK	Japan
5	MXL	Maxell	Japan
6	MCI	MITUI CHEMICALS	Japan
7	JVC	Victor JVC	Japan
8	TAIYOYUDEN	Taiyo yuden	Japan
	TYG		
9	GSC	Giga Storage	Taiwan
10	PRODISC	Prodisc	Taiwan
11	PRINCO	PRINCO	Taiwan
12	RITEK	RITEK	Taiwan
13	OPTDISC	OPTDISC	Taiwan
14	LEAD DATA	LEAD DATA	Taiwan
15	CMC	CMC	Taiwan
16	AUVISTAR	AUVISTAR	Taiwan
17	ACER	Acer	Taiwan
18	VIVASTAR	VIVASTAR	Switzerland
19	LGE	LG Electronics	Korea

#### DVD-RAM Disc

No.	FL Display (Disc Maker's ID)	Disc Maker	Country
1	MEI	Panasonic	
2	MATSUSHITA	Panasonic	Japan
3	MXL	Maxell	Japan
4	PRODISC	Prodisc	Taiwan
5	OPTDISC	OPTDISC	Taiwan
6	CMC	CMC	Taiwan

\*Since an display is arbitrarily set up by the disk producer side, the above-mentioned display may be changed.

Please make it reference as an example of a display.

(7) Factor of Drive Error occurring is left displayed

INFO A804 40

Error occurring disc state

Error occurring disc type

#### Error Occurring Disc Type

FL Display	Disc Type
00	DVD-ROM/Video
01	Audio-CD
02	2.6GB DVD-RAM
03	4.7GB DVD-RAM
04	DVD-R

## Error Occurring Disc State

FL Displays (Hexadecimal)	Description			
	Disc distinction state	Cartridge disc state	Cartridge disc state	Disc size
00	OK	With cartridge	Has not been opened yet.	12 cm
10	OK	With cartridge	Has not been opened yet.	8 cm
20	OK	With cartridge	Has been opened.	12 cm
30	OK	With cartridge	Has been opened.	8 cm
40	OK	Bare	Has not been opened yet.	12 cm
50	OK	Bare	Has not been opened yet.	8 cm
60	OK	Bare	Has been opened.	12 cm
70	OK	Bare	Has been opened.	8 cm
80	NG	With cartridge	Has not been opened yet.	12 cm
90	NG	With cartridge	Has not been opened yet.	8 cm
A0	NG	With cartridge	Has been opened.	12 cm
B0	NG	With cartridge	Has been opened.	8 cm
C0	NG	Bare	Has not been opened yet.	12 cm
D0	NG	Bare	Has not been opened yet.	8 cm
E0	NG	Bare	Has been opened.	12 cm
F0	NG	Bare	Has been opened.	8 cm

## 9 Self-Diagnosis and Special Mode Setting

### 9.1. Self-Diagnosis Functions

Self-Diagnosis Function provides information for errors to service personnel by “Self-Diagnosis Display” when any error has occurred.

**U\*\***, **H\*\*** and **F\*\*** are stored in memory and held.

You can check latest error code by transmitting [0] [1] of Remote Controller in Service Mode.

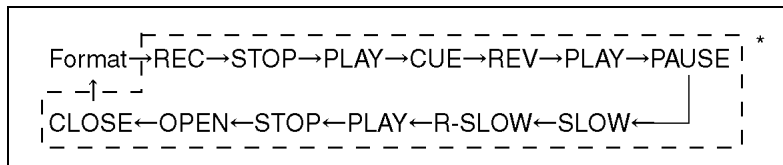
Automatic Display on FL will be cancelled when the power is turned off or AC input is turned off during self-diagnosis display is ON.

Error Code	Diagnosis contents	Description	Monitor Display	Automatic FL display
U30	Remote control code error	Display appears when main unit and remote controller codes are not matched.	No display	<div>*CHK REMOTE</div> <p>“*” is remote controller code of the main unit. Display for 5 seconds.</p>
U59	Abnormal inner temperature detected	Display appears when the drive temperature exceeds 70°C. The power is turned off forcibly. For 30 minutes after this, all key entries are disabled. (Fan motor operates at the highest speed for the first 5 minutes. For the remaining 25 minutes, fan motor is also stopped.) The event is saved in memory as well.	No display	<div>U59</div> <p>“U59 is displayed for 30 minutes.</p>
U99	Hang-up	Displayed when communication error has occurred between Main microprocessor and Timer microprocessor.	No display	<div>U99</div> <p>Displayed is left until the [POWER] key is pressed.</p>
F00	No error information	Initial setting for error code in memory (Error code Initialization is possible with error code initialization and main unit initialization.)	No display	No display
F58	Drive hardware error	When drive unit error is detected, the event is saved in memory.	No display	No display
F34	Initialization error when main microprocessor is started up for program recording	When initialization error is detected after starting up main microprocessor for program recording, the power is turned off automatically. The event is saved in memory.	No display	No display
UNSUPPORT	Unsupported disc error	<p>*An unsupported format disc was played, although the drive starts normally.</p> <p>*The data format is not supported, although the media type is supported.</p> <p>*Exceptionally in case of the disc is dirty.</p>	“This disc is incompatible.”	<div>UNSUPPORT</div> <p>Display for 5 seconds.</p>
NO READ	Disc read error	<p>*A disc is flawed or dirty.</p> <p>*A poor quality failed to start.</p> <p>*The track information could not be read.</p>	“Cannot read. Please check the disc.”	<div>NOREAD</div>
HARD ERR	Drive error	The drive detected a hard error.	“DVD drive error.”	<p>Display for 5 seconds.</p> <div>HARD ERR</div>
SELF CHECK	Restoration operation	<p>Since the power cord fell out during a power failure or operation, it is under restoration operation.</p> <p>*It will OK, if a display disappears automatically. If a display does not disappear, there is the possibility that defective Digital P.C.B. / RAM drive.</p>	No display	<div>SELF CHECK</div>
Full Program	16 programs are already set.	16 programs are already set.	No display	<div>PROG FULL</div>
UNFORMAT	Unformatted disc error	You have inserted an unformatted DVD-RAM or DVD-RW that is unformatted or recorded on other equipment.		<div>UNFORMAT</div>
PLEASE WAIT	Unit is in termination process	<p>Unit is in termination process now.</p> <p>“BYE” is displayed and power will be turned off.</p> <p>In case “Quick Start” of setup menu is ON, it is displayed in restoration operation for AC off.</p>	No display	<div>PLEASE WAIT</div>

## 9.2. Special Modes Setting

Item		FL display	Key operation
Mode name	Description		Front Key
TEST Mode	*All the main unit's parameters (include tuner) are initialized.	TEST L1	Press [STOP], [CH UP] and [OPEN/CLOSE] keys simultaneously for five seconds when power is off.
Rating password	The audiovisual level setting password is initialized to "Level 8".	INIT	Open the tray, and press [REC] and [PLAY] simultaneously for 5 seconds.
Service Mode	Setting every kind of modes for servicing. *Details are described in "9.3. Service Mode".	SERVICE MODE	When the power is off, press [CH UP], [OPEN/CLOSE] and [REC] keys simultaneously for 5 seconds.
Forced disc eject	Removing a disc that cannot be ejected. The tray will open and unit will shift to P-off mode. *When Timer REC is ON or EXT-LINK is ON, execute " Forced disc eject " after releasing Timer REC or EXT-LINK. *This command is not effective during "Child lock" is ON. While Demonstration Lock is being set, this Forced disc eject function is not accepted. <div>If this command was executed while TIMER REC is being set, TIMER REC setting will turn to OFF.</div>	The display before execution leaves. *****	When the power is off, press [STOP] and [CH UP] keys simultaneously for 5 seconds.
Forced power-off	When the power button is not effective while power is ON, turn off the power forcibly. *When Timer REC is ON or EXT-LINK is ON, execute "Forced Power-off" after releasing Timer REC or EXT-LINK.	Display in P-off mode.	Press [Power] key over than 10 seconds.
Aging	Perform sequence of modes as * Aging Description shown below continually. <div><b>Caution:</b> All programs in HDD and DVD-RAM disc will be deleted because Formatting is done once in Aging process.</div>	Display following the then mode.	When the power is ON, press [STOP], [POWER] and [OPEN/CLOSE] simultaneously for over 5 seconds and less than 10 seconds. <b>NOTE1:</b> If Unit has not turned into Aging mode by operations shown above, execute TEST MODE once and re-execute operation shown above. (*All the main unit's parameters include tuner are initialized by TEST mode.) <b>NOTE2:</b> If the unit has hung-up because of pressing keys for over 10 seconds, once turn off the power, and re-execute this command. *When releasing Aging mode, press [POWER] key.

### Aging Contents (Example):



\*XP mode . . . . . repeat twice  
 SP mode . . . . . repeat 4 times  
 LP mode . . . . . repeat 8 times  
 EP mode . . . . . repeat 12 times

Item		FL display	Key operation
Mode name	Description		Front Key
Demonstration lock/unlock	Ejection of the disc is prohibited. The lock setting is effective until unlocking the tray and not released by "Main unit initialization" of service mode.	*When lock the tray. <div>LOCK</div>	When the power is on, press [STOP] and [POWER] keys simultaneously for 5 seconds.
		"LOCK" is displayed for 3 seconds.	
		*When unlock the tray. <div>UNLOCK</div>	When the power is on, press [STOP] and [POWER] keys simultaneously for 5 seconds.
		"UNLOCK" is displayed for 3 seconds.	
ATP Initialization	ATP setting is initialized, and the unit turns off automatically.	*When press OPEN/CLOSE key while the tray being locked. <div>LOCK</div>	Press [OPEN/CLOSE] key while the tray being locked.
		Display "LOCK" for 3 seconds.	
ATP Initialization	ATP setting is initialized, and the unit turns off automatically.	It is same with display in stop mode. <div>*****</div>	When the power is on (E-E mode), press [CH UP] and [CH DOWN] simultaneously for 5 seconds.
Progressive initialization	The progressive setting is initialized to Interlace.	The display before execution leaves. <div>*****</div>	When the power is on (E-E mode), press [STOP] and [PLAY] simultaneously for 5 seconds.

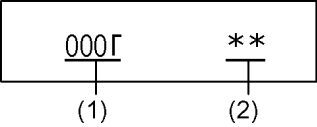
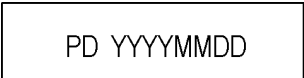

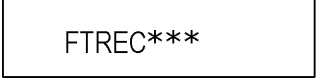



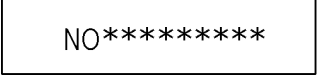
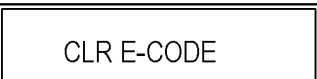

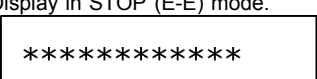
## 9.3. Service Modes

Service mode setting: While the power is off, press **REC, CH UP and OPEN / CLOSE** simultaneously for five seconds.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Release Items	Item of Service Mode executing is cancelled.	SERVICE MODE	Press [0] [0] or [Return] in service mode.
Error Code Display	Last Error Code of U/H/F held by Timer is displayed on FL. *Details are described in "9.1. Self-Diagnosis Functions".	<div>♣ □ □</div> <div>* ♣ shows U/H/F. □ □ shows number.</div>	Press [0] [1] in service mode
ROM Version Display	Region code, MAIN firm version, TIMER firm version and DRIVE firmware versions are displayed on FL for five seconds per each version in order, but ROM version will be left displayed.	<div>REGION*</div> <div>MAIN *****</div> <div>TIMER*****</div> <div>DRIVE *****</div> <div>ROM * ***</div> <div>"*" are version displays.</div>	Press [0] [2] in service mode
White Picture Output	White picture is output as component Output from AV Decoder. *White picture (Saturation rate : 100%) *It is enable to switch Interlace/Progressive by "I/P switch: [1] [4]"	Initial mode is "Interlace". <div>WHIT I</div>	Press [1] [1] in service mode.
		Switch Interlace/Progressive <div>WHIT P</div>	Press [1] [4] in White Picture Output mode. *I/P are switched alternately.
Magenta Picture Output	Magenta picture is output with Component Output from AV Decoder. *Magenta picture (Saturation rate: 100%) *It is enable to switch Interlace/Progressive by "I/P switch: [1] [4]"	Initial mode is "Interlace". <div>MAGE I</div>	Press [1] [2] in service mode.
		Switch Interlace/Progressive <div>MAGE P</div>	Press [1] [4] in Magenta Picture Output mode. *I/P are switched alternately.
RTSC Return in XP (A & V)	L1 input signal is encoded (XP), decoded (XP) and output decoded signal to external without DISC recording and DISC playback.	Initial mode: EE2/ Interlace/ XP/ Audio 48kHz <div>EE2 I XP 48</div>	Press [1] [3] in service mode.
		Switch Interlace/Progressive <div>EE2 P XP 48</div>	Press [1] [4] in RTSC Return XP mode. *I/P are switched alternately.
		Audio 44.1 kHz/ 48 kHz Switch <div>EE2 P XP 44</div>	Press [2] [4] in RTSC Return XP mode. *48 kHz / 44.1 kHz are switched alternately.
I/P Switch	Switch Interlace and Progressive in EE mode. *Initial setting is "Interlace". *This command is effective during executing "White Picture Output", "Magenta Picture Output" and "RTSC Return in XP (A & V)" modes.	Initial mode is Interlace <div>SERVICE I</div> <div>Switch Interlace/Progressive SERVICE P</div>	Press [1] [4] in I/P Switch mode. *I/P are switched alternately.





Item		FL display	Key operation (Remote controller key)
Mode name	Description		
Turn on all FL/LEDs	All segments of FL and all LEDs are turned on.	All segments are turned on.	Press [5] [1] in service mode.
S1 signal output	Forcibly superimpose the S1 signal (approx. 4.5V DC) on the EE chroma signal, and check the output on the S terminal.	S1 OUTPUT	Press [5] [2] in service mode.
S2 signal output	Forcibly superimpose the S2 signal (approx. 2V DC) on the EE chroma signal, and check the output on the S terminal.	S2 OUTPUT	Press [5] [3] in service mode.
Front connection inspection	Press all front keys and check the connection between Main P.C.B. and Front key Switches.	 <p>(1) Each time a key is pressed, segment turned on increases one by one. (2) Total number of keys that have been pressed.</p>	Press [5] [4] in service mode.
Production Date Display	Display the date when the unit was produced.	 <p>YYYY: Year MM: Month DD: Day</p>	Press [6] [1] in service mode.
Display the accumulated working time	Display the accumulated unit's working time.	 <p>(Indicating unit: Second)</p>	Press [6] [4] in service mode.
Display the Error History	Display the Error History stored on the unit.	<p>Display reason of error for 5 seconds.</p>  <p>Display the time when the error has occurred for 5 seconds..</p>  <p>YY: Year MM: Month DD: Day HH: Hour MM: Minute Accumulated working time till occurring of the error is left displayed.</p>  <p>(Indicating unit: Second)</p>	Press [6] [5] in service mode. Then press [0] [1] ~ [1] [9], the past 19 error histories are displayed.
Delete the Error History	Delete Error History information stored on the unit.		Press [9] [7] in service mode.
Tray OPEN/CLOSE Test	The RAM drive tray is opened and closed repeatedly.	 <p>"*" is number of open/close cycle times.</p>	Press [9] [1] in service mode *When releasing this mode, press the [POWER] button of Remote Controller more than 10 seconds.
Error code initialization	Initialization of the last error code held by timer (Write in F00)		Press [9] [8] in service mode.
Initialize Service	Last Drive Error, Error history and Error Codes stored on the unit are initialized to factory setting.		Press [9] [9] in service mode.
Finishing service mode	Release Service Mode.		Press power button on the front panel or Remote controller in service mode.

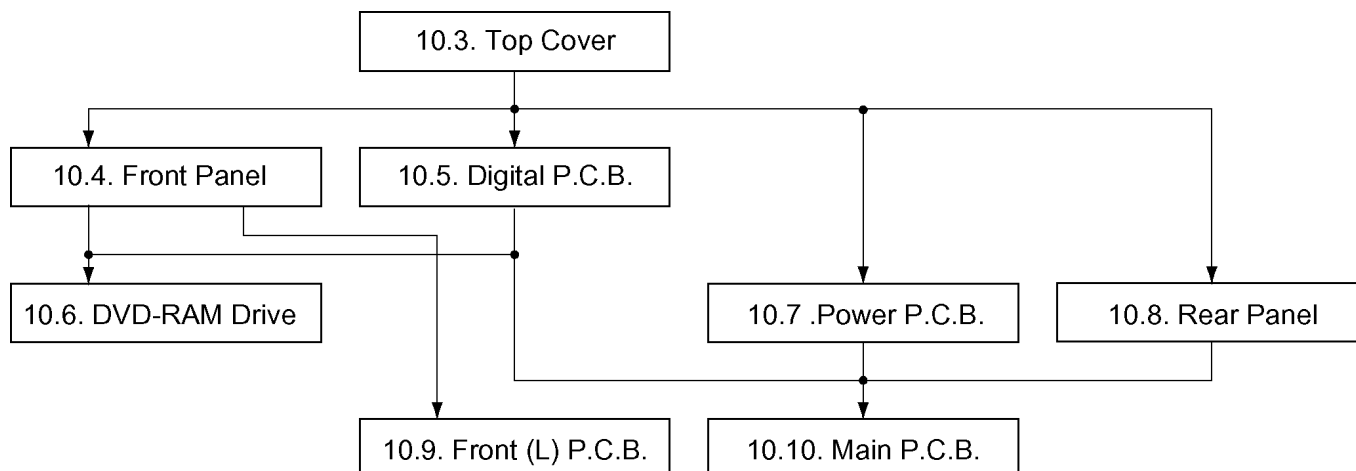
# 10 Assembling and Disassembling

**Caution:**  
Original screws should be used.

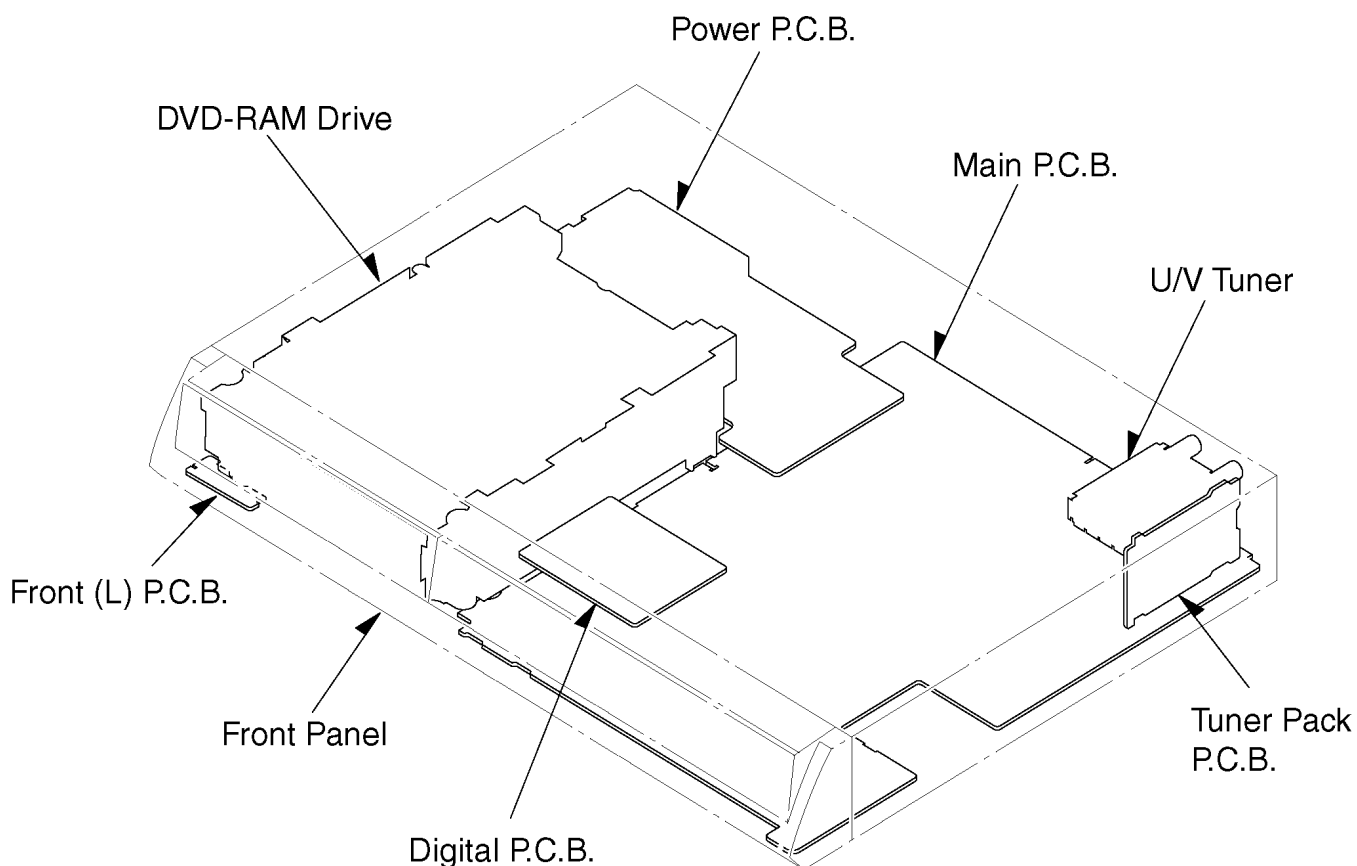
## 10.1. Disassembly Flow Chart

The following chart is the procedure for disassembling the casing and inside parts for internal inspection when carrying out the servicing.

To assemble the unit, reverse the steps shown in the chart below.

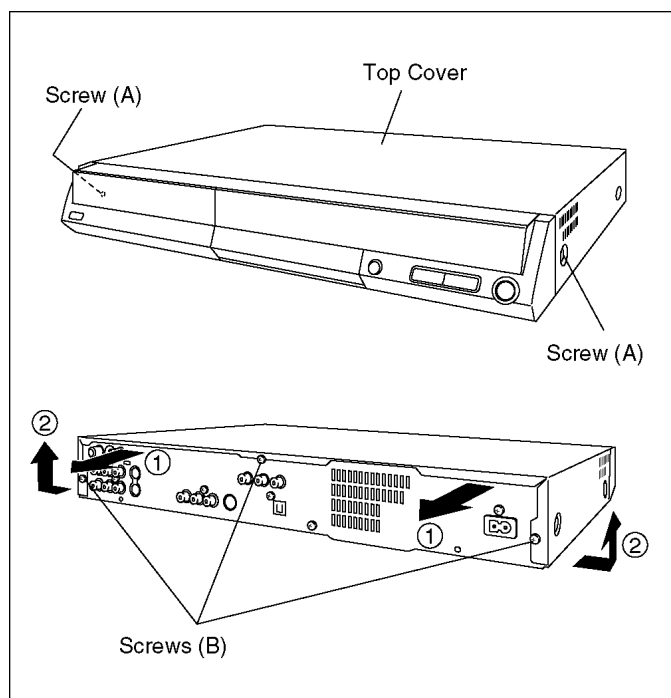


## 10.2. P.C.B. Positions



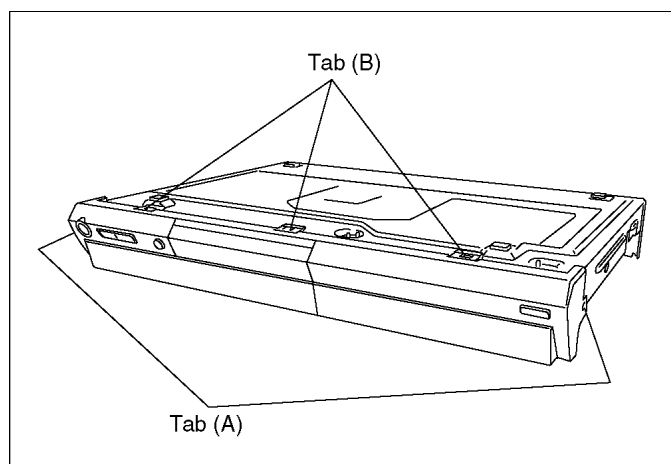
## 10.3. Top Cover

1. Remove the 2 screws (A) and 3 screws (B).
2. Slide Top Cover rearward and open the both ends at rear side of the Top Cover a little and lift the Top Cover in the direction of the arrows.



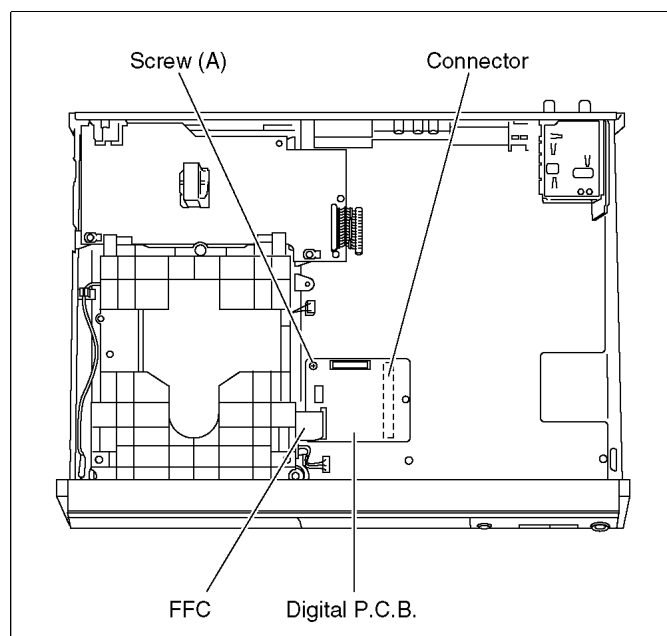
## 10.4. Front Panel

1. Unlock 3 tabs (A) and 2 tabs (B) in this order to remove Front Panel.  
(The tab (A) and (B) should be unlocked at the same time, respectively.)



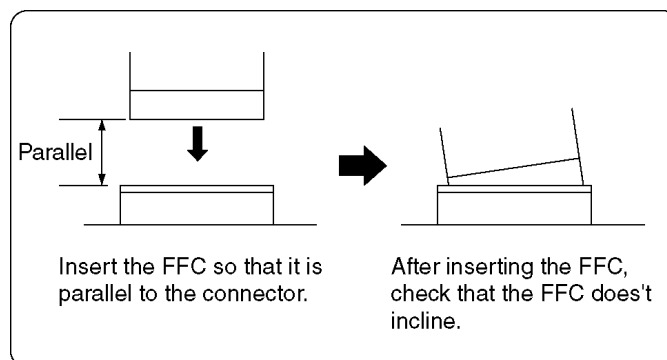
## 10.5. Digital P.C.B.

1. Remove FFC and a Screw (A).
2. Lift up Digital P.C.B. slightly so to disconnect Connector to remove Digital P.C.B.



### CAUTION 1:

When replacing Digital P.C.B., pay attention as below.



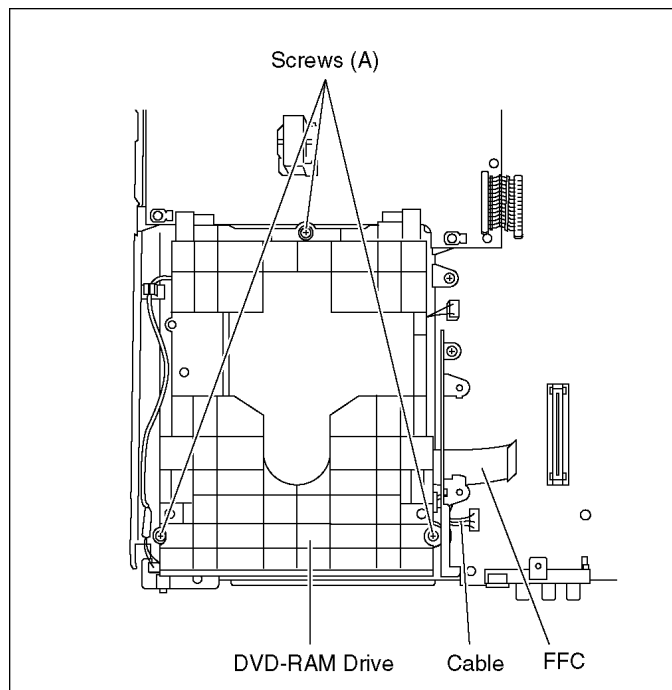
### CAUTION 2:

Be careful to do not touch surface of CSP ICs.

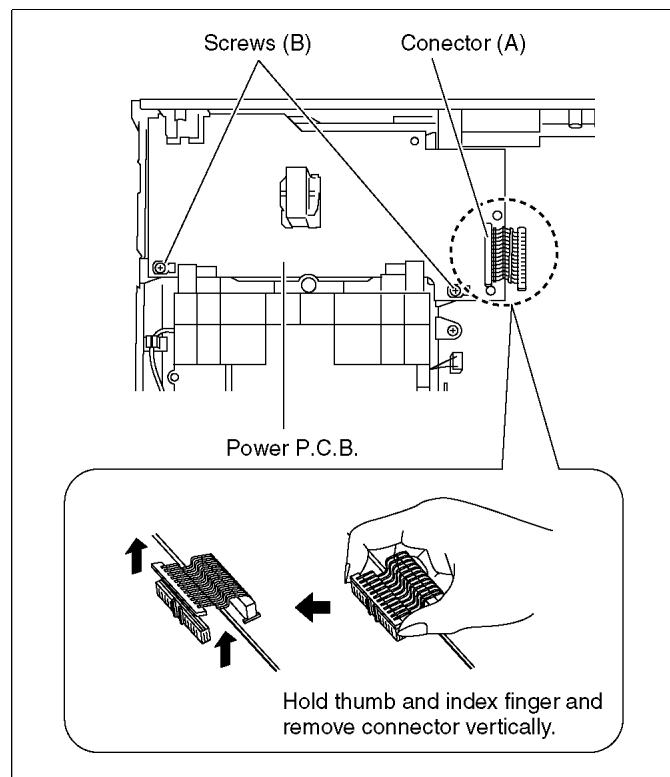
If you have touched surface of CSP IC, clean up with alcohol and so on to prevent oxidation.

## 10.6. DVD-RAM Drive

1. Remove 3 Screws (A) to remove DVD-RAM Drive.
2. Lift up DVD-RAM Drive slightly and remove FFC and remove Cable between DVD-RAM Drive and Main P.C.B.

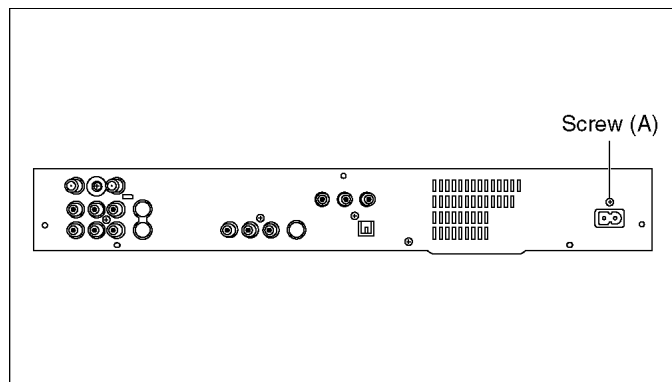


2. Remove 2 Screws (B) and disconnect Connector (A) to remove Power P.C.B.



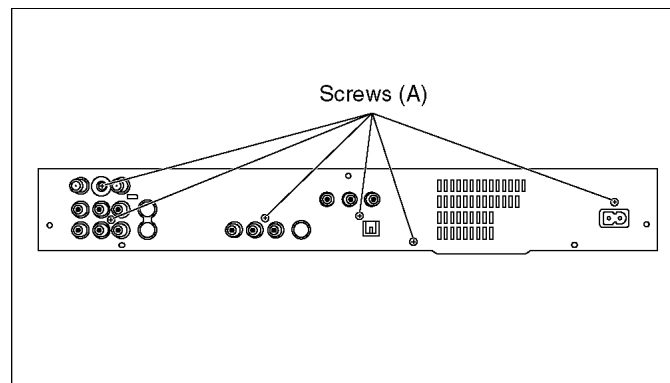
## 10.7. Power P.C.B.

1. Remove Screw (A).

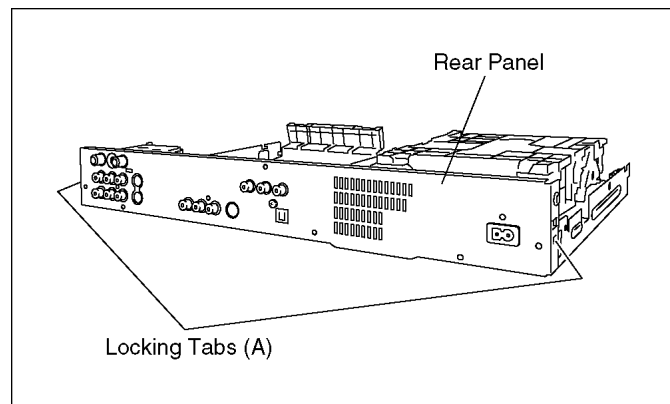


## 10.8. Rear Panel

1. Remove 6 Screws (A).

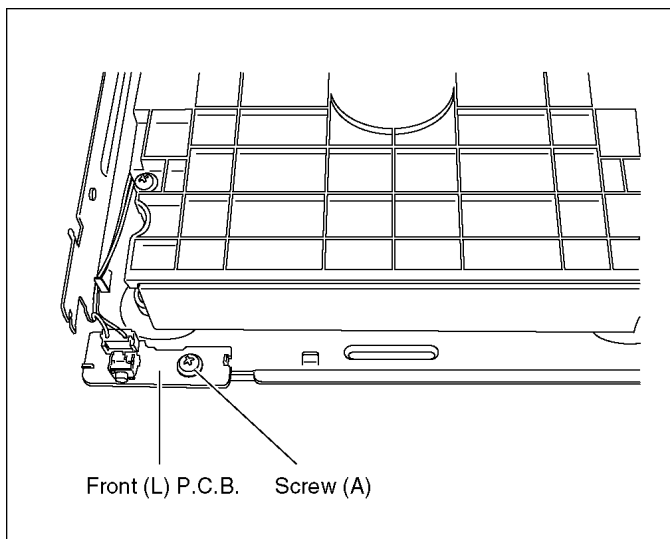


2. Unlock 2 Locking Tabs (A) to remove Rear Panel.



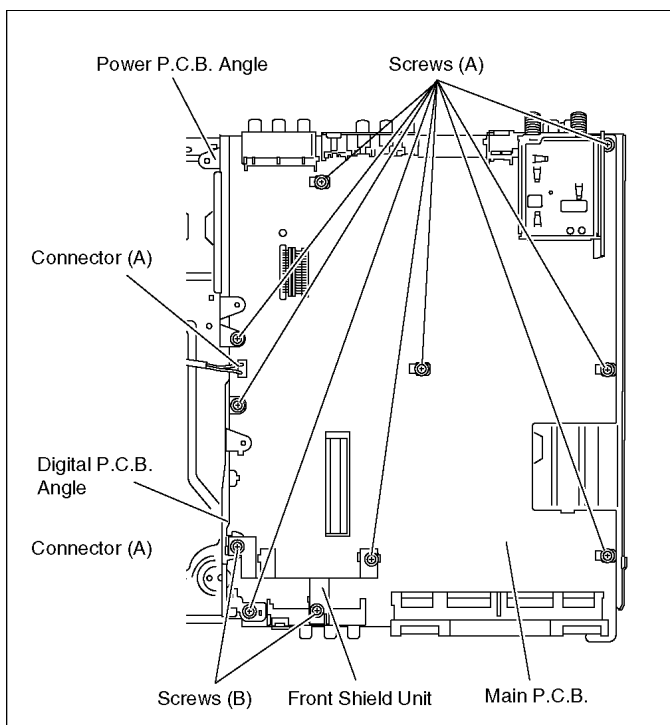
## 10.9. Front (L) P.C.B.

1. Remove a Screw (A) to remove Front (L) P.C.B.



## 10.10. Main P.C.B.

1. Disconnect Connector (A) for Front (L) P.C.B.
2. Remove 9 Screws (A), 2 Screws (B)
3. Remove Power P.C.B. Angle, Digital P.C.B. Angle and Front Shield Unit, and disconnect Connector (A) to remove Main P.C.B.



# 11 Service Fixture and Tools

Part Number	Description	Compatibility
RFKZ0125	Extension FFC (Digital P.C.B. - DVD-RAM Drive / 40 Pin)	Same as E50/ E55 series
RFKZ0126	Extension Cable (MainP.C.B. - DVD-RAM Drive/ 4 Pin)	Same as E30/HS2 series
RFKZ0216	Extension Cable (MainP.C.B. - Power P.C.B. / 23 Pin)	Same as E55 series
RFKZ0260	Extension Cable (MainP.C.B. - Digital P.C.B. / 88 Pin)	New

## 12 Service Positions

### Note:

For description of the disassembling procedure, see the section 10.

### 12.1. Checking and Repairing of Power P.C.B.

#### 1. Top Case

Remove 2 Screws (A) on side

Remove 3 rear Screws (B) on rear

Remove Top Case

#### 2. Power P.C.B.

Remove 1 Screw for AC Inlet fixing

Remove 2 Screws fixing Power P.C.B.

Remove Connector (A) to Main P.C.B.

Unlock Power P.C.B. from a Flange to remove Power P.C.B.

Connect Extension Cable between Main P.C.B. and Power P.C.B. (RFKZ0216).

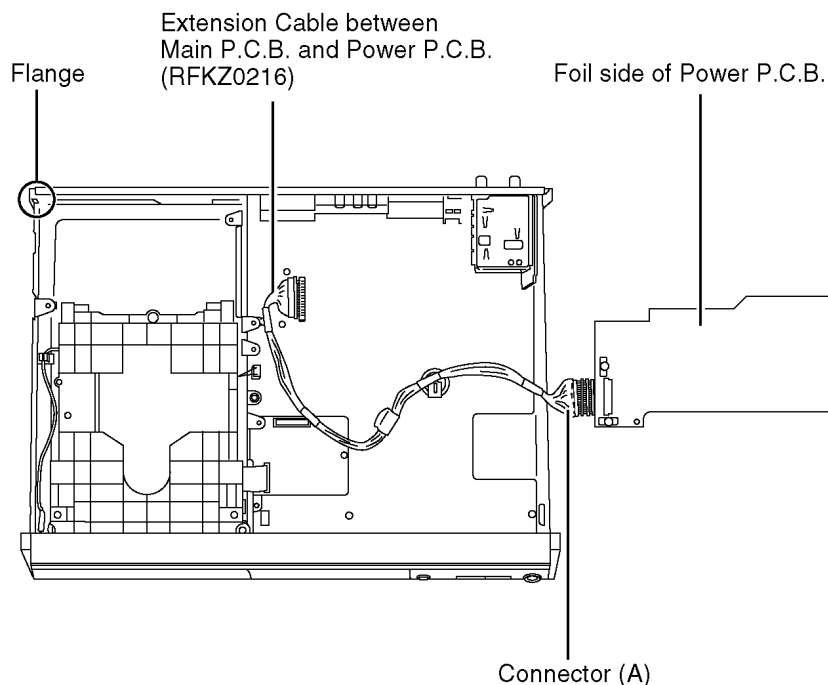
Put Power P.C.B. so that it's foil side faces top.

#### Caution:

Red wire in the extension cable should be connected to (1) pin.

#### Caution 2:

Original screws should be used.



## 12.2. Checking and Repairing of Digital P.C.B.

### 1. Top Case

Remove 2 Screws (A) on side

Remove 3 rear Screws (B) on rear

Remove Top Case

### 2. Front Panel

Unlock 2 Locking Tabs on side

Unlock 3 Locking Tabs on bottom

Remove Front Panel

### 3. Digital P.C.B.

Remove FFC from Digital P.C.B.

Remove a Screw fixing Digital P.C.B.

Lift up Digital P.C.B. to remove it

### 4. Front Shield

Remove 1 Screw(A), 2 Screws(B) to remove Front Shield.

### 5. Digital P.C.B. Angle

Remove 2 Screws to remove Digital P.C.B. Angle and remove FFC from DVD RAM Drive.

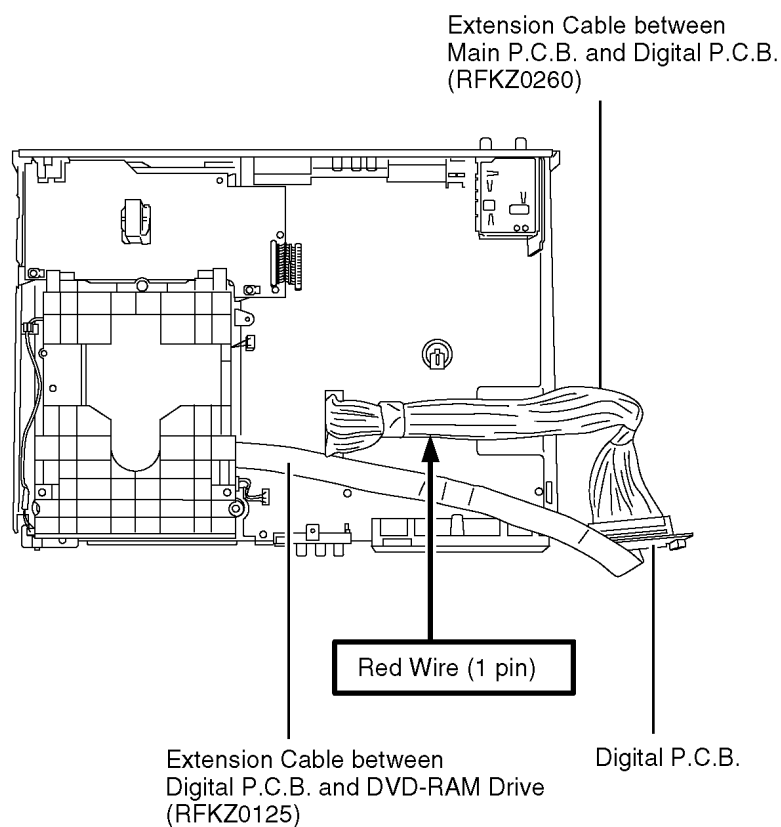
Remove 3 Screws fixing RAM Drive. Lift up DVD-RAM Drive slightly and connect Extension Cables between DVD-RAM Drive and Digital P.C.B. (RFKZ0125). Connect Extension Cable between Main P.C.B. and Digital P.C.B. (RFKZ0260).

#### Caution 1:

Red wire in the extension cable should be connected to (1) pin.

#### Caution 2:

Original screws should be used.





## 12.3. Checking and Repairing of Main P.C.B.

### 1. Top Case

Remove 2 Screws (A) on side

Remove 3 rear Screws (B) on rear

Remove Top Case

### 2. Front Panel

Unlock 2 Locking Tabs on side

Unlock 3 Locking Tabs on bottom

Remove Front Panel

### 3. Rear Panel

Remove 6 Screws (one is for Tuner)

Unlock 2 Locking Tabs on side

Remove Rear Panel

### 4. Power P.C.B.

Remove 2 Screws fixing Power P.C.B.

Remove Connector (A) to Main P.C.B.

Unlock Power P.C.B. from a Flange to remove Power P.C.B.

### 5. Digital P.C.B.

Remove FFC from Digital P.C.B.

Remove a Screw fixing Digital P.C.B.

Lift up Digital P.C.B. to remove it

### 6. Front Shield

Remove 1 Screw (A), 2 Screws (B) to remove Front Shield.

### 7. Digital P.C.B. Angle

Remove 2 Screws to remove Digital P.C.B. Angle, and remove FFC from DVD RAM Drive.

### 8. DVD-RAM Drive

Remove Cable between RAM Drive and Main P.C.B.

Remove 3 Screws fixing RAM-Drive

Lift up DVD-RAM Drive to remove it

### 9. Main P.C.B.

Remove a Screw to remove Front (L) P.C.B.

Unlock Clamper for Main-Front (L) Cable

Remove a Screw to remove Power P.C.B. Angle

Remove 6 Screws to remove Main P.C.B.

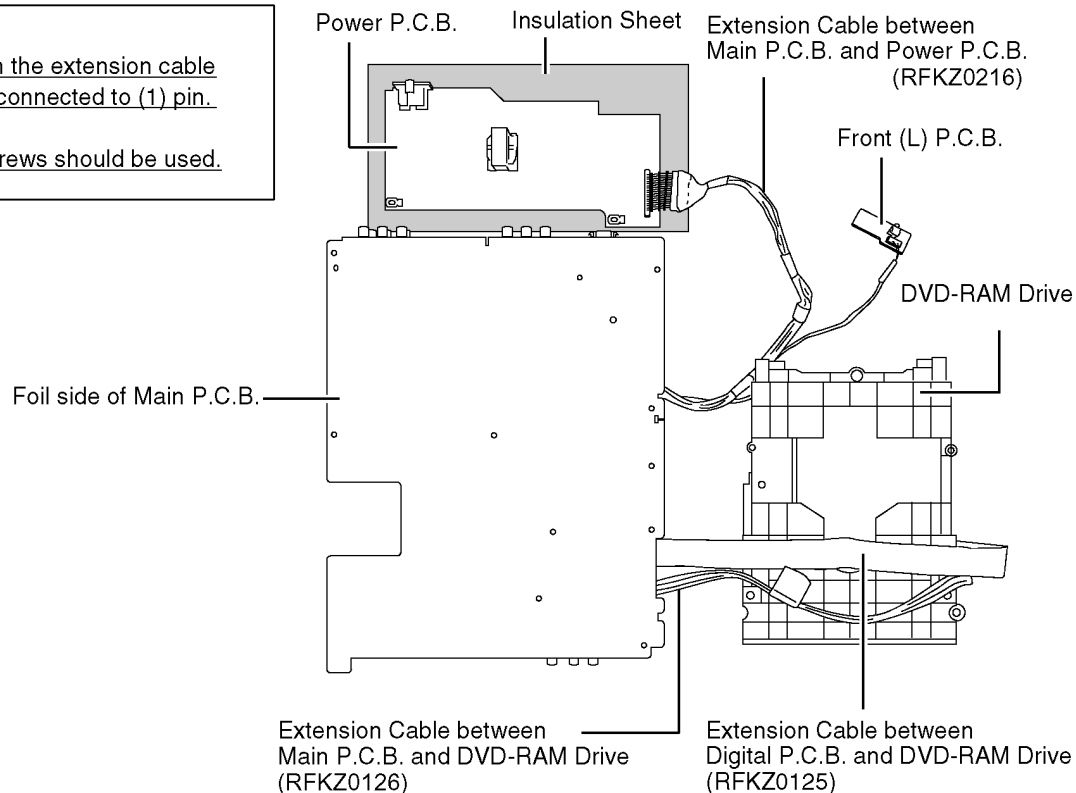
Attach Digital P.C.B. on to Main P.C.B.  
Connect Extension Cables between Main P.C.B. and DVD-RAM Drive (RFKZ0126), between Digital P.C.B. and DVD-RAM Drive (RFKZ0125), and between Main P.C.B. and Power P.C.B. (RFKZ0216)

#### Caution 1:

Red wire in the extension cable should be connected to (1) pin.

#### Caution 2:

Original screws should be used.



## 12.4. Checking and Repairing of DVD-RAM Drive

### 1. Top Case

Remove 2 Screws (A) on side

Remove 3 rear Screws (B) on rear

Remove Top Case

### 2. Front Panel

Unlock 2 Locking Tabs on side

Unlock 3 Locking Tabs on bottom

Remove Front Panel

### 3. DVD-RAM Drive

Remove 3 Screws fixing RAM Drive

Remove FFC from Digital P.C.B.

Remove Cable between DVD-RAM Drive and Main P.C.B.

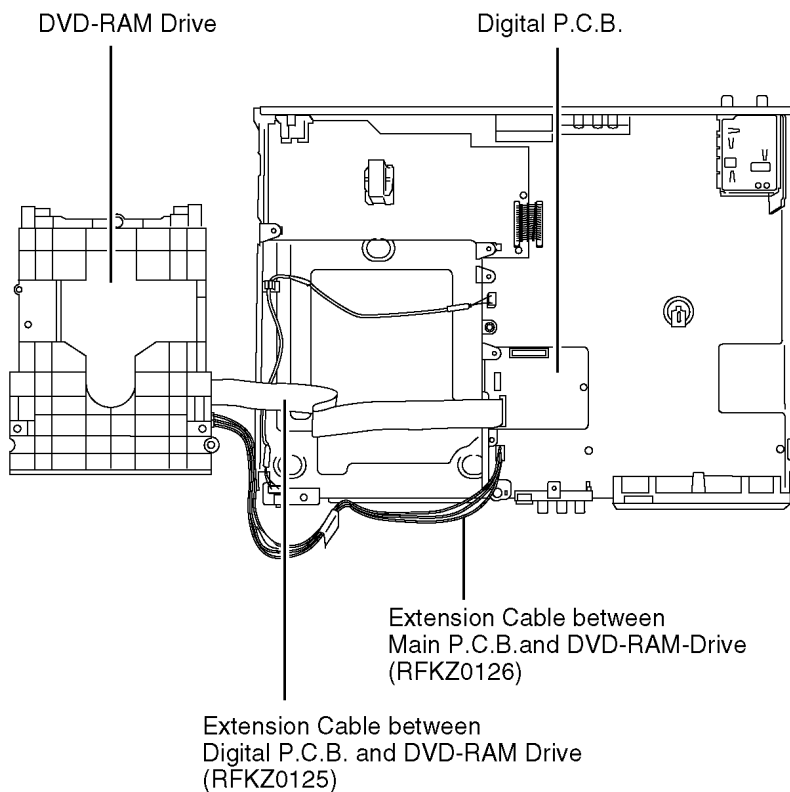
Lift up DVD-RAM Drive to remove it

Remove FFC from DVD-RAM Drive

Put DVD-RAM Drive on side.  
Connect Extension Cables between Main P.C.B. and DVD-RAM Drive (RFKZ0126), and between Digital P.C.B. and DVD-RAM Drive (RFKZ0125).

### Caution 2:

Original screws should be used.



## 13 Caution after replacing parts

### 13.1. After replacing the RAM Drive with new one

After replacing RAM drive unit, TEST mode is not necessary. Please confirm operation for RAM drive

### 13.2. When the unit does not operate normally after replacing the Timer Microprocessor or Main P.C.B.

When the unit does not operate normally after replacing the Timer Microprocessor or Main P.C.B. with new one, reset Timer Microprocessor.

Step	Operation	Descriptions
1	While power is OFF, short TW7501 pin (RESET) and the GND momentarily.	"RESET (L)" is transmitted to the XRESET of Timer Microprocessor (IC7505-11 pin), then the unit operates normally.

## 14 Standard Inspection Specifications after Making Repairs

After making repairs, we recommend performing the following inspection, to check normal operation.

No.	Procedure	Item to Check
1	Turn on the power, and confirm items pointed out.	Items pointed out should reappear.
2	Insert RAM disc.	The Panasonic RAM disc should be recognized.
3	Enter the EE (TU IN / AV IN - AV OUT) mode.	No abnormality should be seen in the picture, sound or operation.
4	Perform auto recording and playback for one minute using the RAM disc.	No abnormality should be seen in the picture, sound or operation. *Panasonic DVD-RAM disc should be used when recording and playback.
5	If a problem is caused by a VCD, DVD-R, DVD-Video, Audio-CD, or MP3, playback the test disc.	No abnormality should be seen in the picture, sound or operation.
6	After checking and making repairs, upgrade the firmware to the latest version.	Make sure that [FIRM_SUCCESS] appears in the FL displays. *[UNSUPPORT] display means the unit is already updated to newest same version. Then version up is not necessary.
7	Transfer [9][9] in the service mode setting, and initialize the service settings (return various settings and error information to their default values. The laser time is not included in this initialization).	Make sure that [CLR SERV] appears in the FL display. After checking it, turn the power off.
8	When replacing of RAM drive, transfer [9] [5] in the service mode setting to delete Laser used time.	Make sure that [CLR LASER] appears in the FL display. After that, turn power off.

Use the following checklist to establish the judgement criteria for the picture and sound.

Item	Contents	Check	Item	Contents	Check
Picture	Block noise		Sound	Distorted sound	
	Crosscut noise			Noise (static, background noise, etc.)	
	Dot noise			The sound level is too low.	
	Picture disruption			The sound level is too high.	
	Not bright enough			The sound level changes.	
	Too bright				
	Flickering color				
	Color fading				

# 15 Voltage and Waveform Chart

## Note)

Circuit voltage and waveform described herein shall be regarded as reference information when probing defect point, because it may differ from an actual measuring value due to difference of Measuring instrument and its measuring condition and product itself.

## 15.1. Power P.C.B.

Ref No.	IC1150						IC1200					IC1270												
	1	2	3	4	5		1	2	3		1	2	3	4	5									
MODE																								
REC	2.4	1.8	0	13.2	-560		5.0	2.5	0		0	2.3	12.1	12.1	12.9									
PLAY	2.4	1.8	0	13.2	-580		5.0	2.5	0		0	2.3	12.1	12.1	12.9									
STOP	2.4	1.8	0	13.2	-650		5.0	2.5	0		0	2.4	12.1	12.1	13.0									
Ref No.	IC1302						IC1401																	
MODE	1	2	3	4	5		1	2	3	4	5	6	7	8										
REC	6.0	5.2	5.1	2.6	0		13.0	4.5	1.2	1.1	0.8	0	11.7	13.0										
PLAY	6.0	5.2	5.1	2.6	0		13.0	4.5	1.2	1.1	0.8	0	11.7	13.0										
STOP	6.0	5.2	5.1	2.6	0		13.0	4.5	1.3	1.1	0.8	0	11.7	13.0										
Ref No.	IC1402																							
MODE	1	2	3	4	5	6	7	8																
REC	13.0	4.5	1.2	1.3	0.8	0	10.5	12.9																
PLAY	13.0	4.5	1.2	1.3	0.8	0	10.5	12.9																
STOP	13.0	4.5	1.2	1.2	0.8	0	10.6	13.0																
Ref No.	Q1200					Q1400							Q1401											
MODE	1	2	3	4		1	2	3	4	5	6		1	2	3	4	5	6						
REC	6.0	5.0	0	1.8		1.2	1.2	11.6	13.0	1.2	1.2		0.7	0.8	10.5	12.9	0.8	0.8						
PLAY	6.0	5.0	0	1.8		1.2	1.2	11.6	13.0	1.2	1.2		0.7	0.8	10.5	12.9	0.8	0.8						
STOP	6.0	5.0	0	1.8		1.2	1.2	11.7	13.0	1.2	1.2		0.7	0.7	10.6	13.0	0.7	0.7						
Ref No.	QR1300					QR1302					QR1303					QR1304					QR1307			
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B					
REC	0	4.5	0		0	5.3	0		0	0	4.9		0	0.1	4.9		0	0.1	3.2					
PLAY	0	4.5	0		0	5.3	0		0	0	4.9		0	0.1	4.9		0	0.1	3.2					
STOP	0	4.5	0		0	5.2	0		0	0	4.9		0	0.1	4.9		0	0.1	3.2					
Ref No.	QR1308																							
MODE	E	C	B																					
REC	0	2.3	0.1																					
PLAY	0	2.3	0.1																					
STOP	0	2.3	0.1																					

## 15.2. Main P.C.B.

Ref No.	IC1501									IC1502										
MODE	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8			
REC	5.0	-	0	3.4	4.8	-	-	6.2		3.3	-	0	2.0	4.8	-	-	3.7			
PLAY	5.0	-	0	3.4	4.8	-	-	6.2		3.3	-	0	2.0	4.8	-	-	3.7			
STOP	5.0	-	0	3.4	4.8	-	-	6.2		3.3	-	0	2.0	4.8	-	-	3.7			
Ref No.	IC1504						IC1510													
MODE	1	2	3	4	5		1	2	3	4	5	6	7	8						
REC	3.7	3.1	3.3	2.6	0		5.0	-	0	3.4	4.9	-	-	6.1						
PLAY	3.7	3.1	3.3	2.6	0		5.0	-	0	3.4	4.9	-	-	6.1						
STOP	3.7	3.1	3.3	2.6	0		5.0	-	0	3.4	4.9	-	-	6.1						
Ref No.	IC1511									IC1512										
MODE	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8			
REC	5.2	-	0	3.6	6.2	-	-	6.1		5.0	-	0	3.4	4.9	-	-	6.2			
PLAY	5.2	-	0	3.6	6.2	-	-	6.1		5.0	-	0	3.4	4.9	-	-	6.2			
STOP	5.2	-	0	3.6	6.2	-	-	6.2		5.0	-	0	3.4	4.9	-	-	6.2			
Ref No.	IC3001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
REC	1.4	0	2.5	5.0	1.8	4.9	1.4	4.7	0.1	2.7	0	1.4	4.9	1.4	0	0.1	2.7	0	1.4	4.9
PLAY	1.4	0	2.5	5.0	1.8	4.9	1.4	4.7	0.1	2.7	0	1.4	4.9	1.4	0	0.1	2.7	0	1.4	4.9
STOP	1.4	0	2.5	5.0	1.8	1.6	1.4	4.7	0.1	2.7	0	1.4	4.9	1.4	0	0.1	2.7	0	1.4	4.9
Ref No.	IC3001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
REC	1.4	0	0.1	2.7	4.9	1.7	1.8	1.9	1.9	2.2	0	2.2	2.2	2.2	2.2	1.7	1.7	0	1.8	5.0
PLAY	1.4	0	0.1	2.7	4.9	1.7	1.8	1.9	1.9	2.2	0	2.2	2.2	2.2	2.2	1.7	1.7	0	1.8	5.0
STOP	1.4	0	0.1	2.7	4.9	1.8	1.8	1.9	1.9	2.2	0	2.2	2.2	2.2	2.2	1.7	1.7	0	1.8	5.0
Ref No.	IC3001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
REC	2.8	0	2.8	4.9	2.8	2.8	1.8	4.7	2.8	0	2.8	4.9	2.8	2.9	1.1	0	5.1	5.1	5.1	0.1
PLAY	2.8	0	2.8	4.9	2.8	2.8	1.8	4.7	2.8	0	2.8	4.9	2.8	2.9	1.1	0	5.1	5.1	5.1	0.1
STOP	2.8	0	2.8	4.9	2.8	2.8	1.8	4.7	2.8	0	2.8	4.9	2.8	2.9	1.1	0	5.1	5.1	5.1	0.1
Ref No.	IC3001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
REC	0	0.8	0.8	5.0	1.3	0	1.8	0	2.0	0	0.3	5.0	0.3	0	0.4	0	0	5.0	0	0
PLAY	0	0.8	0.8	5.0	1.3	0	1.8	0	2.0	0	0.3	5.0	0.3	0	0.4	0	0	5.0	0	0
STOP	0	0.8	0.8	5.0	1.3	0	1.8	0	2.0	0	0.2	5.0	0.3	0	0.2	0	0	5.0	0	0
Ref No.	IC4001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
REC	-	4.5	4.5	0.4	0.4	4.5	4.5	3.4	4.5	4.5	4.5	4.5	4.5	4.5	0	4.5	-	4.5	-	5.1
PLAY	-	4.5	4.5	0.4	0.4	4.5	4.5	3.4	4.5	4.5	4.5	4.5	4.5	4.5	0	4.5	-	4.5	-	5.1
STOP	-	4.5	4.5	0.3	0.3	4.5	4.5	3.4	4.5	4.5	4.5	4.5	4.5	4.5	0	4.5	-	4.5	-	5.1

Ref No.	IC4001																				
MODE	21	22	23	24	25	26	27	28	29	30	31	32									
REC	5.1	0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	9.0	4.5	4.5									
PLAY	5.1	0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	9.0	4.5	4.5									
STOP	5.1	0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	9.0	4.5	4.5									
Ref No.	IC4004					IC4005					IC7404										
MODE	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5	6	7	8	
REC	1.3	0	4.8	6.2	5.1		4.8	0	1.3	9.0	12.9		3.3	1.5	1.9	0	2.8	1.5	3.3	5.0	
PLAY	1.3	0	4.8	6.2	5.1		4.8	0	1.3	9.0	12.9		3.3	1.5	1.9	0	2.8	1.5	3.3	5.0	
STOP	1.3	0	4.8	6.2	5.1		4.8	0	1.3	9.0	12.9		3.3	1.5	1.9	0	2.8	1.5	3.3	5.0	
Ref No.	IC7501																				
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
REC	5.0	3.0	4.4	0.9	0	2.1	2.1	4.8	-27.8	-27.8	-27.8	-27.8	-27.8	-27.8	-27.8	-27.8	-24.2	4.8	-24.2	-17.0	
PLAY	5.0	3.0	4.4	0.9	0	2.1	2.1	4.8	-27.8	-27.8	-27.8	-27.8	-27.8	-27.8	-27.8	-27.8	-24.2	4.8	-24.2	-17.0	
STOP	4.9	3.0	4.4	0.8	0	2.1	2.1	4.8	-27.8	-27.8	-27.8	-27.8	-27.8	-27.8	-27.8	-27.8	-27.8	4.7	-24.2	-20.0	
Ref No.	IC7501																				
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
REC	-17.0	-24.2	-27.8	-27.8	-24.2	-27.8	-27.8	-13.3	-27.8	-17.0	-17.0	-24.2	-17.0	-24.2	-13.4	-17.0	-24.2	-13.4	-13.4	-24.2	
PLAY	-17.0	-24.2	-27.8	-27.8	-24.2	-27.8	-27.8	-13.3	-27.8	-17.0	-17.0	-24.2	-17.0	-24.2	-13.4	-17.0	-24.2	-13.4	-13.4	-24.2	
STOP	-17.0	-24.2	-24.2	-27.8	-24.2	-27.8	-27.8	-20.6	-20.6	-20.6	-20.6	-20.6	-13.4	-20.6	-13.4	-24.2	-17.0	-17.0	-24.2	-27.9	
Ref No.	IC7501																				
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REC	-24.2	-27.9	-24.2	-24.2	-24.2	-13.5	-24.2	-27.9	-24.2	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-24.3	-24.3	-24.3	-24.3	-24.3	
PLAY	-24.2	-27.9	-24.2	-24.2	-24.2	-13.5	-24.2	-27.9	-24.2	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-24.3	-24.3	-24.3	-24.3	-24.3	
STOP	-27.9	-27.9	-24.2	-24.2	-24.2	-17.1	-13.5	-27.9	-24.3	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-24.3	-24.3	-24.3	-24.3	-24.3	
Ref No.	IC7501																				
MODE	61	62	63	64																	
REC	-24.3	-24.3	-24.3	-28.1																	
PLAY	-24.3	-24.3	-24.3	-28.1																	
STOP	-24.3	-24.3	-24.3	-28.1																	
Ref No.	IC7502					IC7503					IC7506										
MODE	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5				
REC	4.9	5.2	0	-	-		2.2	3.3	0	-	-		0	0	-	4.9	4.9				
PLAY	4.9	5.2	0	-	-		2.2	3.3	0	-	-		0	0	-	4.9	4.9				
STOP	4.9	5.2	0	-	-		2.2	3.3	0	-	-		0	0	-	4.9	4.9				
Ref No.	IC7505																				
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
REC	0	4.9	0	0.9	0.9	4.4	0	0	0.5	0.6	4.9	1.3	0	2.1	3.3	4.9	3.3	3.2	3.2	3.3	
PLAY	0	4.9	0	0.9	0.9	4.4	0	0	0.5	0.6	4.9	1.3	0	2.1	3.3	4.9	3.3	3.2	3.2	3.3	
STOP	0	4.9	0	0.8	0.8	4.4	0	0	0.5	0.6	4.9	1.3	0	2.1	3.3	4.9	3.3	3.2	3.2	3.3	
Ref No.	IC7505																				
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
REC	0	0	0	0	0	0	0	0	0	0	0.9	1.6	0	4.9	2.6	0	0	3.3	3.3	3.3	
PLAY	0	0	0	0	0	0	0	0	0	0	0.9	1.6	0	4.9	2.6	0	0	3.3	3.3	3.3	
STOP	0	0	0	0	0	0	0	0	0	0	0.9	1.6	0	4.9	2.6	0	0	3.3	3.3	3.3	
Ref No.	IC7505																				
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
REC	0	0.1	3.2	3.3	0	0	4.9	4.9	4.9	4.9	4.9	0	4.9	5.0	0	0	0	0	0	0	
PLAY	0	0.1	3.2	3.3	0	0	4.9	4.9	4.9	4.9	4.9	0	4.9	5.0	0	0	0	0	0	0	
STOP	0	0.1	3.2	3.3	0	0	4.9	4.9	4.9	4.9	4.9	0	4.9	5.0	0	0	0	0	0	0	
Ref No.	IC7505																				
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	
REC	0	0	4.9	0	0	0.3	0	4.9	4.9	0	0	0	4.9	0	0	0	0	0	0	4.9	
PLAY	0	0	4.9	0	0	0.3	0	4.9	4.9	0	0	0	4.9	0	0	0	0	0	0	4.9	
STOP	0	0	4.9	0	0	0.2	0	4.9	4.9	0	0	0	4.9	0	0	0	0	0	0	4.9	
Ref No.	IC7505																				
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	
REC	0	0	0	0	4.9	0	4.9	0	0	0	0	0	4.9	3.0	0	0	0	0	4.7	0	
PLAY	0	0	0	0	4.9	0	4.9	0	0	0	0	0	4.9	3.0	0	0	0	0	4.7	0	
STOP	0	0	0	0	4.9	0	4.9	0	0	0	0	0	4.9	3.0	0	0	0	0	4.7	0	
Ref No.	IC7505																				
MODE	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116					
REC	4.9	4.2	0	4.9	4.9	4.9	0	0	1.8	1.3	0	4.9	1.8	0	0	0.5					
PLAY	4.9	4.2	0	4.9	4.9	4.9	0	0	1.8	1.3	0	4.9	1.8	0	0	0.5					
STOP	4.9	4.9	0	4.9	4.9	4.9	0	0	1.8	1.3	0	4.9	1.8	0	0	0.4					
Ref No.	Q4001				Q4002				Q4003				Q7503				Q7504				
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B		
REC	5.2	-0.2	5.2		0	0	-0.2		0	0	-0.2		2.4	0	1.8		1.8	5.0	1.6		
PLAY	5.2	-0.2	5.2		0	0	-0.2		0	0	-0.2		2.4	0	1.8		1.8	5.0	1.6		
STOP	5.2	-0.2	5.2		0	0	-0.3		0	0	-0.3		2.4	0	1.8		1.8	5.0	1.6		
Ref No.	Q7506				Q7507				Q7508												
MODE	E	C	B		E	C	B		E	C	B										
REC	-19.1	-19.1	-18.4		0	29.5	0		0	0	-0.3										
PLAY	-19.1	-19.1	-18.4		0	29.5	0		0	0	-0.3										
STOP	-19.3	-19.3	-18.5		0	34.4	0		0	0	-0.3										
Ref No.	QR4001				QR4002				QR4003				QR4004				QR7502				
MODE	E	C	B		E	C	B		E	C	B		E	C	B		E	C	B		
REC	0	0	4.9		0	0	2.4		0	5.2	0		0	5.2	0		4.9	4.9	0		
PLAY	0	0	4.9		0	0	2.4		0	5.2	0		0	5.2	0		4.9	4.9	0		
STOP	0	0	4.9		0	0	2.3		0	5.2	0		0	5.2	0		4.9	4.9	0		
Ref No.	QR7503																				
MODE	E	C	B																		
REC	0	0	2.2																		
PLAY	0	0	2.2																		
STOP	0	0	2.2																		

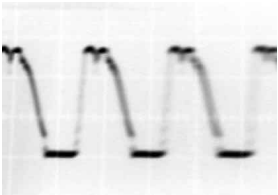

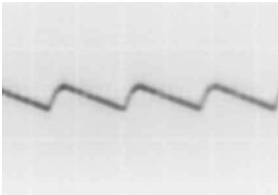
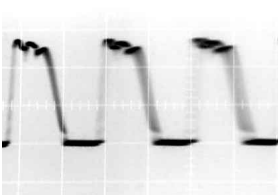

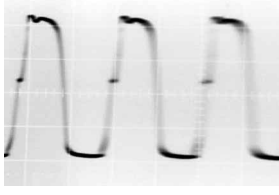

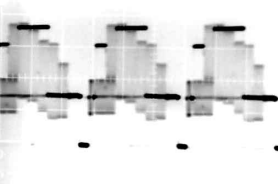
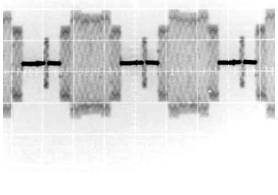
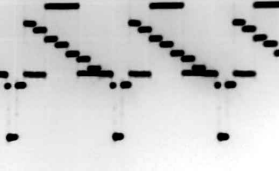
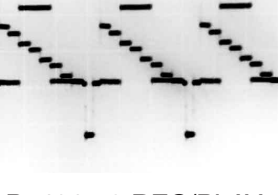
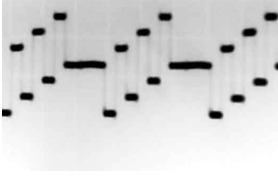
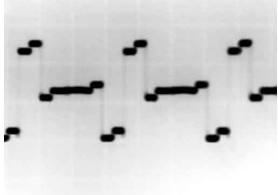
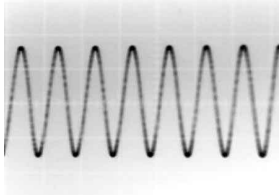
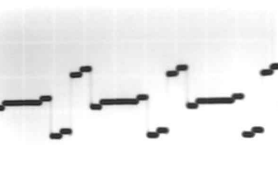
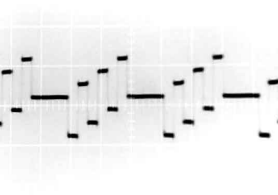
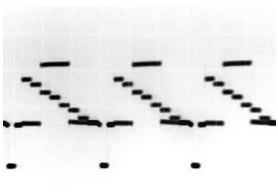
## 15.3. Tuner P.C.B.

Ref No.	IC7801																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
REC	-	0.7	2.8	0.8	2.4	2.4	4.5	-	2.5	2.5	-	-	-	2.7	2.3	-	0	0	-	-
PLAY	-	0.7	2.8	0.8	2.4	2.4	4.5	-	2.5	2.5	-	-	-	2.7	2.3	-	0	0	-	-
STOP	-	0.7	2.9	0.8	2.4	0	4.4	-	0	0	-	-	-	0	0	-	0	0	-	-
Ref No.	IC7801																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32								
REC	0	0	2.2	5.1	0	0	5.1	0	2.2	2.2	-	2.3								
PLAY	0	0	2.2	5.1	0	0	5.1	0	2.2	2.2	-	2.3								
STOP	0	0	0	0	0	0	0	0	0	0	-	0								
Ref No.	Q7801																			
MODE	E	C	B																	
REC	0	0	0																	
PLAY	0	0	0																	
STOP	0	0	0																	

## 15.4. P9001 Connector

Ref No.	P9001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
REC	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.1	3.3	2.3	-	5.1	-	-	-
PLAY	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.1	3.3	2.3	-	5.1	-	-	-
STOP	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.2	3.3	0.2	3.3	3.2	3.2	3.3	2.3	-	5.1	-	-	-
Ref No.	P9001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
REC	-	-	-	-	0	-	0	3.3	2.5	4.8	2.5	-	0	0	0	1.7	0	3.3	2.5	-
PLAY	-	-	-	-	0	-	0	3.3	2.5	4.8	2.5	-	0	0	0	1.7	0	3.3	2.5	-
STOP	-	-	-	-	0	-	0	3.3	2.5	4.8	2.5	-	0	0	0	1.7	0	3.3	2.5	-
Ref No.	P9001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
REC	2.5	3.3	0	0	0	0	1.1	5.0	0	-	1.5	5.0	0	3.3	1.0	3.7	0	3.7	1.1	6.2
PLAY	2.5	3.3	0	0	0	0	1.1	5.0	0	-	1.5	5.0	0	3.3	1.0	3.7	0	3.7	1.1	6.2
STOP	2.5	3.3	0	0	0	0	1.1	5.0	0	-	1.5	5.0	0	3.3	1.0	3.7	0	3.7	1.1	6.2
Ref No.	P9001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
REC	0	6.2	1.0	6.2	0	3.3	0	3.3	0	3.3	0	3.3	0	3.3	0	-	0	-	0	-
PLAY	0	6.2	1.0	6.2	0	3.3	0	3.3	0	3.3	0	3.3	0	3.3	0	-	0	-	0	-
STOP	0	6.2	1.0	6.2	0	3.3	0	3.3	0	3.3	0	3.3	0	3.3	0	-	0	-	0	-
Ref No.	P9001																			
MODE	81	82	83	84	85	86	87	88												
REC	0	1.5	1.3	1.5	0	1.5	2.1	1.5												
PLAY	0	1.5	1.3	1.5	0	1.5	2.1	1.5												
STOP	0	1.5	1.3	1.5	0	1.5	2.1	1.5												

## 15.5. Waveform Chart

 <p>T1151-3 STOP 30Vp-p (5 <math>\mu</math> sec.div)</p>	 <p>T1151-4 STOP 360Vp-p (5 <math>\mu</math> sec.div)</p>	 <p>T1151-6 STOP 20Vp-p (5m sec.div)</p>	 <p>T1151-8 STOP 30Vp-p (5 <math>\mu</math> sec.div)</p>
 <p>T1151-10 STOP 15Vp-p (5 <math>\mu</math> sec.div)</p>	 <p>IC1150-1 STOP 9.0Vp-p (5 <math>\mu</math> sec.div)</p>	 <p>IC1150-2 STOP 0.5Vp-p (5 <math>\mu</math> sec.div)</p>	 <p>P7401-83 REC/PLAY 1.0Vp-p (20 <math>\mu</math> sec.div)</p>
 <p>P7401-51 REC/PLAY 0.8Vp-p (20 <math>\mu</math> sec.div)</p>	 <p>P7401-47 REC/PLAY 1.0Vp-p (20 <math>\mu</math> sec.div)</p>	 <p>P7401-59 REC/PLAY 1.0Vp-p (20 <math>\mu</math> sec.div)</p>	 <p>P7401-63 REC/PLAY 0.6Vp-p (20 <math>\mu</math> sec.div)</p>
 <p>P7401-55 REC/PLAY 0.6Vp-p (20 <math>\mu</math> sec.div)</p>	 <p>P7401-29,31 REC/PLAY 0.8Vp-p (1m sec.div)</p>	 <p>JK3903-18 REC/PLAY 1.0Vp-p (20 <math>\mu</math> sec.div)</p>	 <p>JK3903-19 REC/PLAY 1.0Vp-p (20 <math>\mu</math> sec.div)</p>
 <p>JK3903-20 REC/PLAY 2.0Vp-p (20 <math>\mu</math> sec.div)</p>			

# 16 Abbreviations

INITIAL/LOGO		ABBREVIATIONS
A	A0~UP	ADDRESS
	ACLK	AUDIO CLOCK
	AD0~UP	ADDRESS BUS
	ADATA	AUDIO PES PACKET DATA
	ALE	ADDRESS LATCH ENABLE
	AMUTE	AUDIO MUTE
	AREQ	AUDIO PES PACKET REQUEST
	ARF	AUDIO RF
	ASI	SERVO AMP INVERTED INPUT
	ASO	SERVO AMP OUTPUT
B	ASYN	AUDIO WORD DISTINCTION SYNC
	BCK	BIT CLOCK (PCM)
	BCKIN	BIT CLOCK INPUT
	BDO	BLACK DROP OUT
	BLKCK	SUB CODE BLOCK CLOCK
	BOTTOM	CAP. FOR BOTTOM HOLD
	BYP	BYPATH
C	BYTCK	BYTE CLOCK
	CAV	CONSTANT ANGULAR VELOCITY
	CBDO	CAP. BLACK DROP OUT
	CD	COMPACT DISC
	CDSC	CD SERIAL DATA CLOCK
	CDSRDATA	CD SERIAL DATA
	CDRF	CD RF (EFM) SIGNAL
	CDV	COMPACT DISC-VIDEO
	CHNDATA	CHANNEL DATA
	CKSL	SYSTEM CLOCK SELECT
	CLV	CONSTANT LINEAR VELOCITY
	COFTR	CAP. OFF TRACK
	CPA	CPU ADDRESS
	CPCS	CPU CHIP SELECT
	CPDT	CPU DATA
	CPUADR	CPU ADDRESS LATCH
	CPUADT	CPU ADDRESS DATA BUS
	CPUIRQ	CPU INTERRUPT REQUEST
	CPRD	CPU READ ENABLE
	CPWR	CPU WRITE ENABLE
	CS	CHIP SELECT
	CSYNIN	COMPOSITE SYNC IN
	CSYNOUT	COMPOSITE SYNC OUT
D	DACCK	D/A CONVERTER CLOCK
	DEEMP	DEEMPHASIS BIT ON/OFF
	DEMPH	DEEMPHASIS SWITCHING
	DIG0~UP	FL DIGIT OUTPUT
	DIN	DATA INPUT
	DMSRCK	DM SERIAL DATA READ CLOCK
	DMUTE	DIGITAL MUTE CONTROL
	DO	DROP OUT
	DOUT0~UP	DATA OUTPUT
	DRF	DATA SLICE RF (BIAS)
	DRPOUT	DROP OUT SIGNAL
	DREQ	DATA REQUEST
	DRESP	DATA RESPONSE
	DSC	DIGITAL SERVO CONTROLLER
	DSLIF	DATA SLICE LOOP FILTER
	DVD	DIGITAL VIDEO DISC

INITIAL/LOGO		ABBREVIATIONS
E	EC	ERROR TORQUE CONTROL
	ECR	ERROR TORQUE CONTROL
	ENCSEL	REFERENCE
	ETMCLK	ENCODER SELECT
	ETSCLK	EXTERNAL M CLOCK (81MHz/40.5MHz)
F	ETMCLK	EXTERNAL S CLOCK (54MHz)
	FBAL	FOCUS BALANCE
	FCLK	FRAME CLOCK
	FE	FOCUS ERROR
	FFI	FOCUS ERROR AMP INVERTED INPUT
	FEO	FOCUS ERROR AMP OUTPUT
	FG	FREQUENCY GENERATOR
G	FSC	FREQUENCY SUB CARRIER
	FSC	FS (384 OVER SAMPLING) CLOCK
GND		COMMON GROUNDING (EARTH)
H	HA0~UP	HOST ADDRESS
	HD0~UP	HOST DATA
	HINT	HOST INTERRUPT
	HRXW	HOST READ/WRITE
I	IECOUT	IEC958 FORMAT DATA OUTPUT
	IPFRAG	INTERPOLATION FLAG
	IREF	I (CURRENT) REFERENCE
L	ISEL	INTERFACE MODE SELECT
	LDON	LASER DIODE CONTROL
	LPC	LASER POWER CONTROL
M	LRCK	L CH/R CH DISTINCTION CLOCK
	MA0~UP	MEMORY ADDRESS
	MCK	MEMORY CLOCK
	MCKI	MEMORY CLOCK INPUT
	MCLK	MEMORY SERIAL COMMAND CLOCK
	MDATA	MEMORY SERIAL COMMAND DATA
	MDQ0~UP	MEMORY DATA INPUT/OUTPUT
	MDQM	MEMORY DATA I/O MASK
	MLD	MEMORY SERIAL COMMAND LOAD
O	MPEG	MOVING PICTURE EXPERTS GROUP
	ODC	OPTICAL DISC CONTROLLER
	OFTR	OFF TRACKING
	OSCI	OSCILLATOR INPUT
	OSCO	OSCILLATOR OUTPUT
P	OSD	ON SCREEN DISPLAY
	P1~UP	PORT
	PCD	CD TRACKING PHASE DIFFERENCE
	PCK	PLL CLOCK
	PDVD	DVD TRACKING PHASE DIFFERENCE
	PEAK	CAP. FOR PEAK HOLD
	PLLCLK	CHANNEL PLL CLOCK
	PLLOK	PLL LOCK
	PWMCTL	PWM OUTPUT CONTROL
	PWMDA	PULSE WAVE MOTOR DRIVE A
	PWMOA, B	PULSE WAVE MOTOR OUT A, B



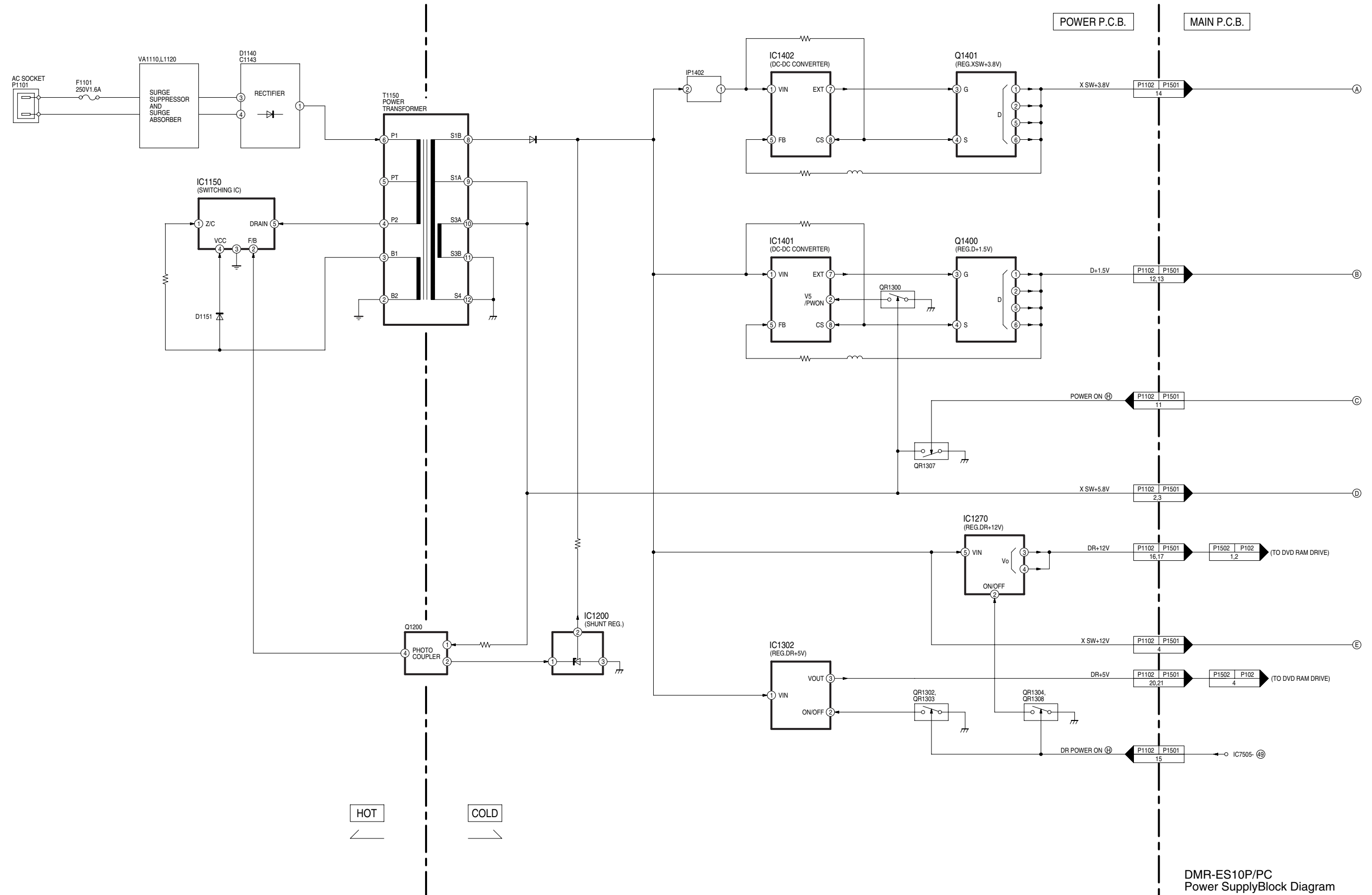
INITIAL/LOGO		ABBREVIATIONS
R	RE	READ ENABLE
	RFENV	RF ENVELOPE
	RFO	RF PHASE DIFFERENCE OUTPUT
	RS	(CD-ROM) REGISTER SELECT
	RSEL	RF POLARITY SELECT
	RST	RESET
S	RSV	RESERVE
	SBI0, 1	SERIAL DATA INPUT
	SBO0	SERIAL DATA OUTPUT
	SBT0, 1	SERIAL CLOCK
	SCK	SERIAL DATA CLOCK
	SCKR	AUDIO SERIAL CLOCK RECEIVER
	SCL	SERIAL CLOCK
	SCLK	SERIAL CLOCK
	SDA	SERIAL DATA
	SEG0~UP	FL SEGMENT OUTPUT
	SELCLK	SELECT CLOCK
	SEN	SERIAL PORT ENABLE
	SIN1, 2	SERIAL DATA IN
	SOUT1, 2	SERIAL DATA OUT
	SPDI	SERIAL PORT DATA INPUT
	SPDO	SERIAL PORT DATA OUTPUT
	SPEN	SERIAL PORT R/W ENABLE
	SPRCLK	SERIAL PORT READ CLOCK
	SPWCLK	SERIAL PORT WRITE CLOCK
	SQCK	SUB CODE Q CLOCK
	SQCX	SUB CODE Q DATA READ CLOCK
	SRDATA	SERIAL DATA
	SRMADR	SRAM ADDRESS BUS
	SRMDT0~7	SRAM DATA BUS 0~7
	SS	START/STOP
	STAT	STATUS
	STCLK	STREAM DATA CLOCK
	STD0~UP	STREAM DATA
	STENABLE	STREAM DATA INPUT ENABLE
	STSEL	STREAM DATA POLARITY SELECT
	STVALID	STREAM DATA VALIDITY
	SUBC	SUB CODE SERIAL
	SBCK	SUB CODE CLOCK
	SUBQ	SUB CODE Q DATA
	SYSCLK	SYSTEM CLOCK
T	TE	TRACKING ERROR
	TIBAL	BALANCE CONTROL
	TID	BALANCE OUTPUT 1
	TIN	BALANCE INPUT
	TIP	BALANCE INPUT
	TIS	BALANCE OUTPUT 2
	TPSN	OP AMP INPUT
	TPSO	OP AMP OUTPUT
	TPSP	OP AMP INVERTED INPUT
	TRCRS	TRACK CROSS SIGNAL
	TRON	TRACKING ON
	TRSON	TRAVERSE SERVO ON

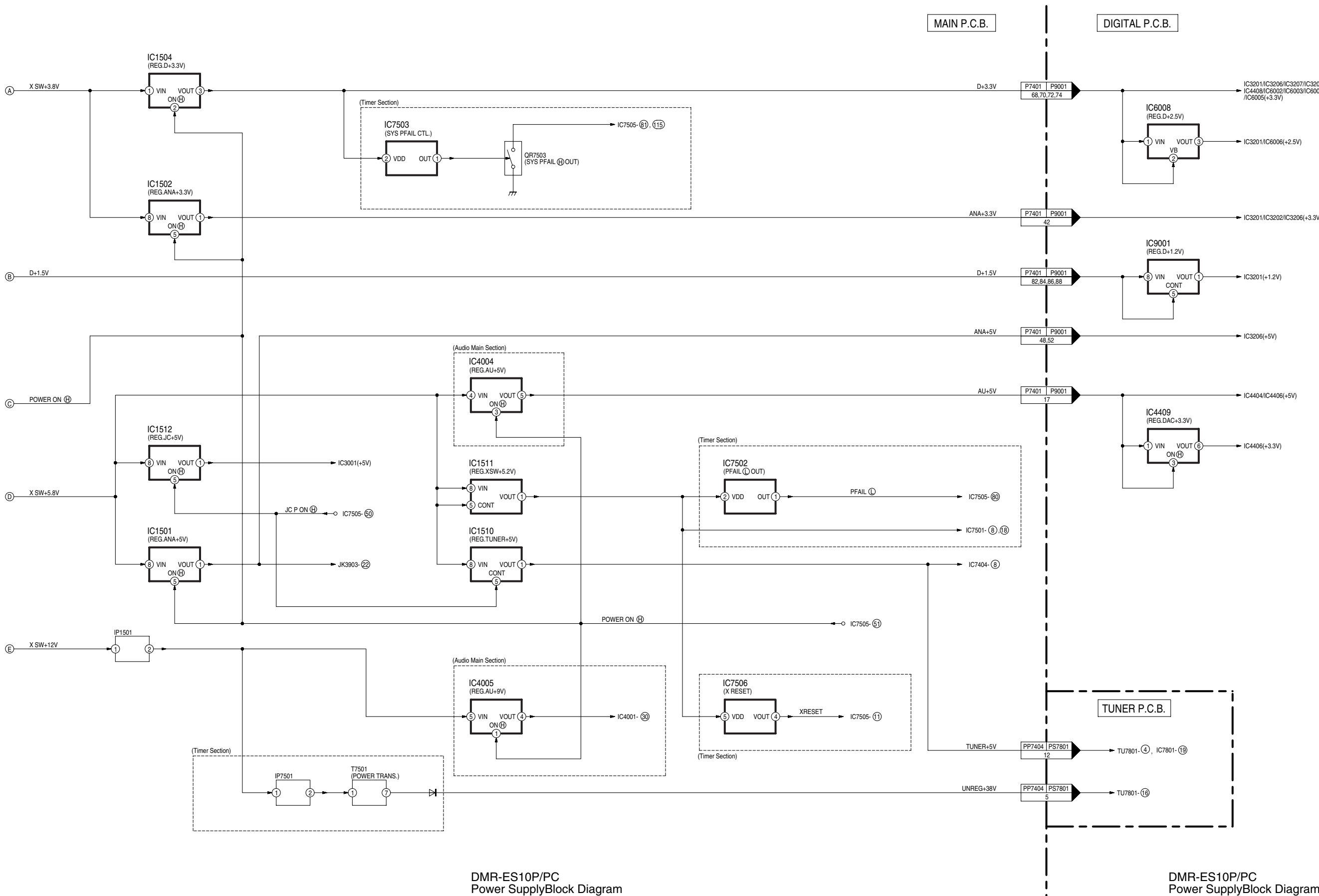
INITIAL/LOGO		ABBREVIATIONS
V	VBLANK	V BLANKING
	VCC	COLLECTOR POWER SUPPLY VOLTAGE
	VCDCONT	VIDEO CD CONTROL (TRACKING BALANCE)
	VDD	DRAIN POWER SUPPLY VOLTAGE
	VFB	VIDEO FEED BACK
	VREF	VOLTAGE REFERENCE
W	VSS	SOURCE POWER SUPPLY VOLTAGE
	WAIT	BUS CYCLE WAIT
	WDCK	WORD CLOCK
	WEH	WRITE ENABLE HIGH
X	WSR	WORD SELECT RECEIVER
	X	X' TAL
	XALE	X ADDRESS LATCH ENABLE
	XAREQ	X AUDIO DATA REQUEST
	XCDROM	X CD ROM CHIP SELECT
	XCS	X CHIP SELECT
	XCSYNC	X COMPOSITE SYNC
	XDS	X DATA STROBE
	XHSYNCO	X HORIZONTAL SYNC OUTPUT
	XHINT	XH INTERRUPT REQUEST
	XI	X' TAL OSCILLATOR INPUT
	XINT	X INTERRUPT
	XMW	X MEMORY WRITE ENABLE
	XO	X' TAL OSCILLATOR OUTPUT
	XRE	X READ ENABLE
	XSRMCE	X SRAM CHIP ENABLE
	XSRMOE	X SRAM OUTPUT ENABLE
	XSRMWE	X SRAM WRITE ENABLE
	XVCS	X V-DEC CHIP SELECT
	XVDS	X V-DEC CONTROL BUS STROBE
	XVSYNCO	X VERTICAL SYNC OUTPUT



# 17 Block Diagram

## 17.1. Power Supply Block Diagram

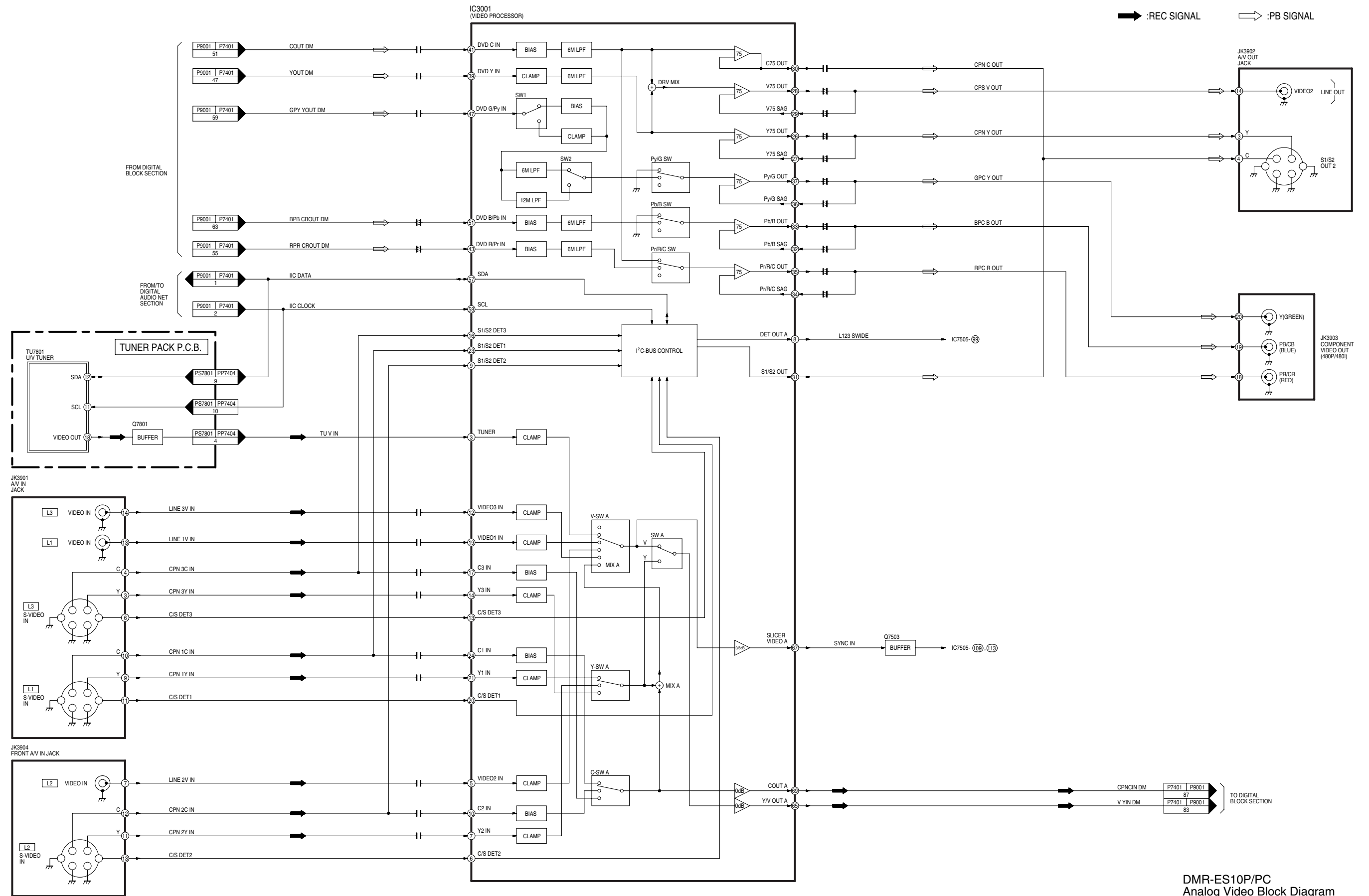




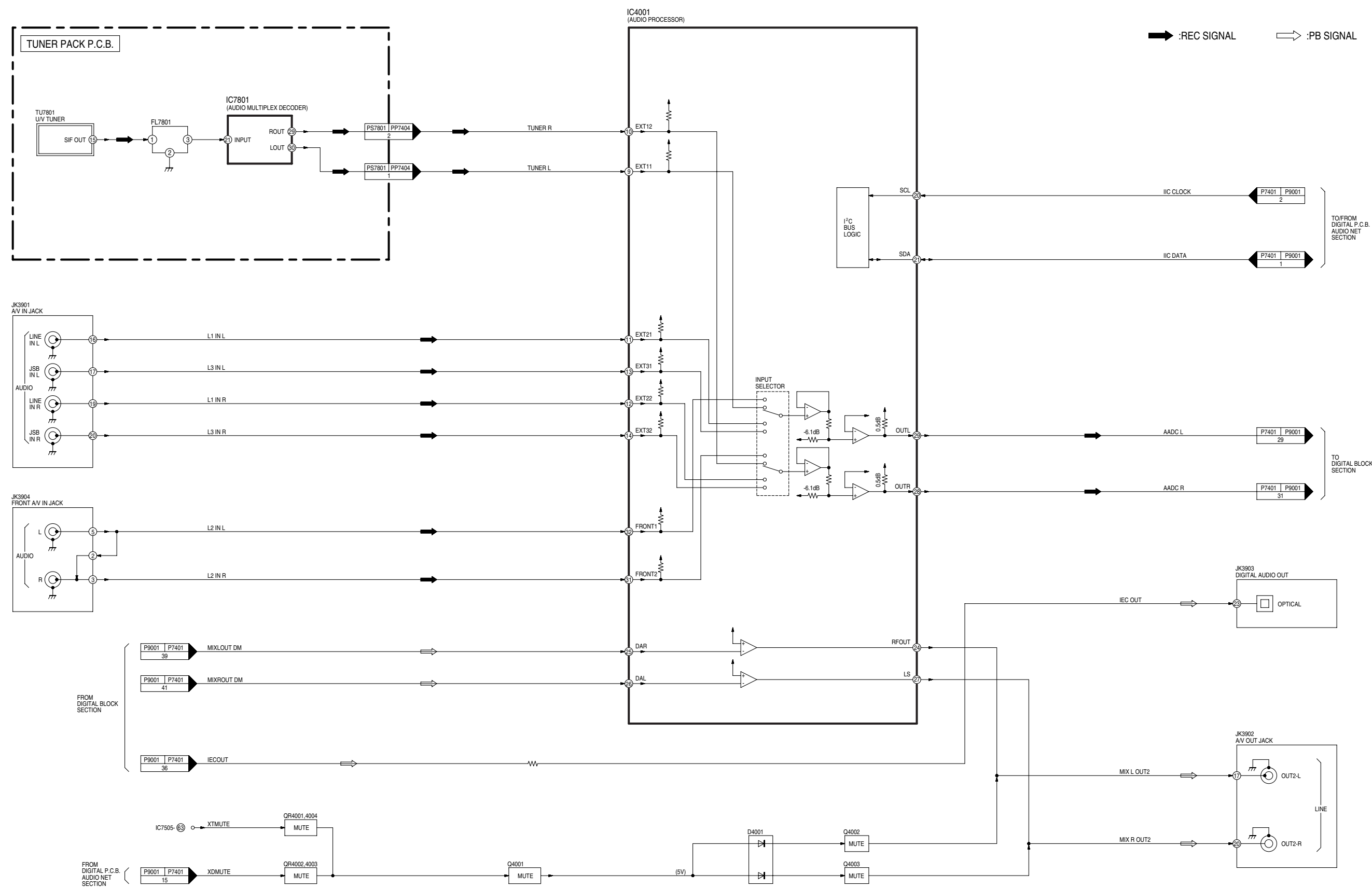
DMR-ES10P/PC  
Power SupplyBlock Diagram

DMR-ES10P/PC  
Power SupplyBlock Diagram

## 17.2. Analog Video Block Diagram

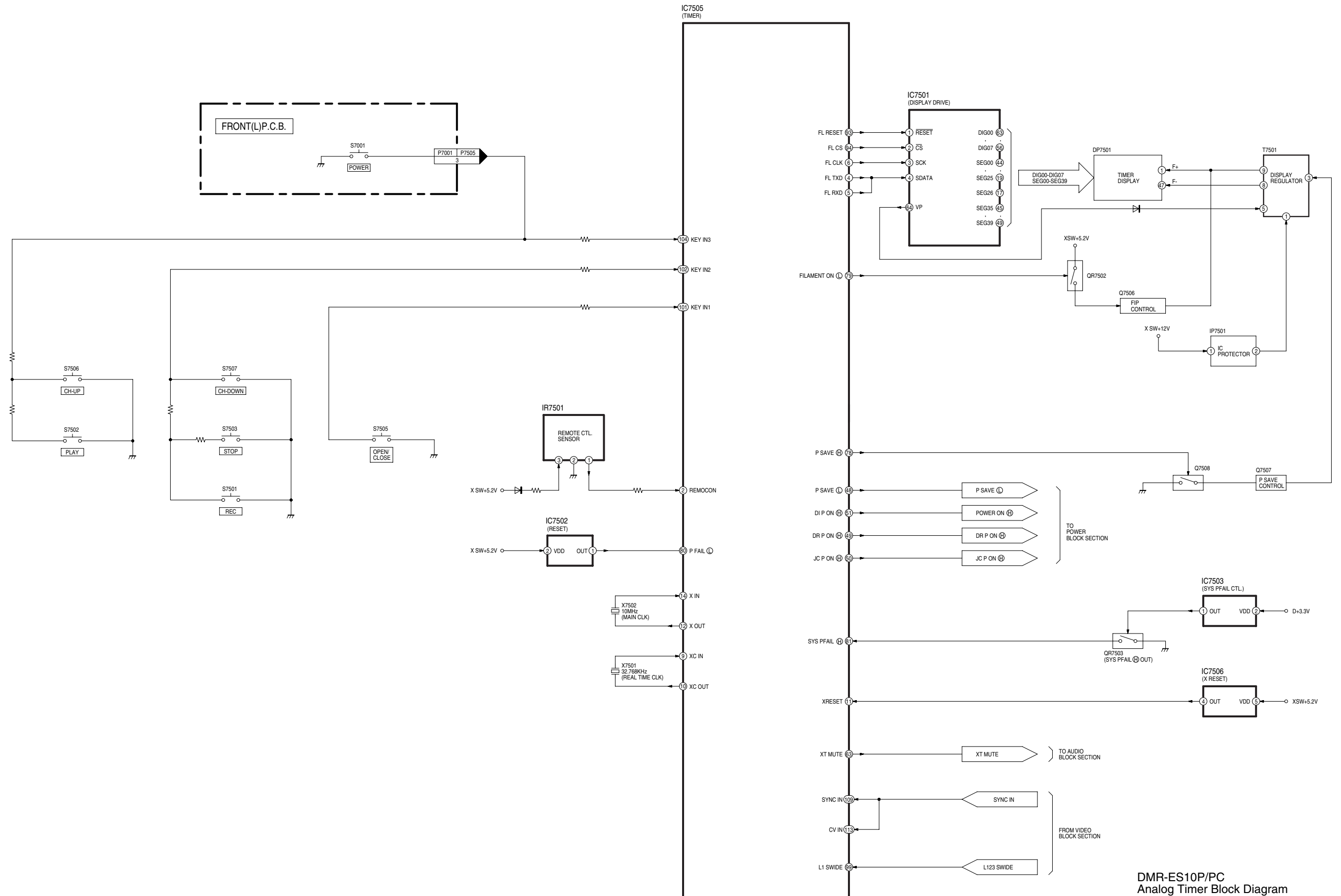


17.3. Analog Audio Block Diagram



DMR-ES10P/PC  
Analog Audio Block Diagram

## 17.4. Analog Timer Block Diagram

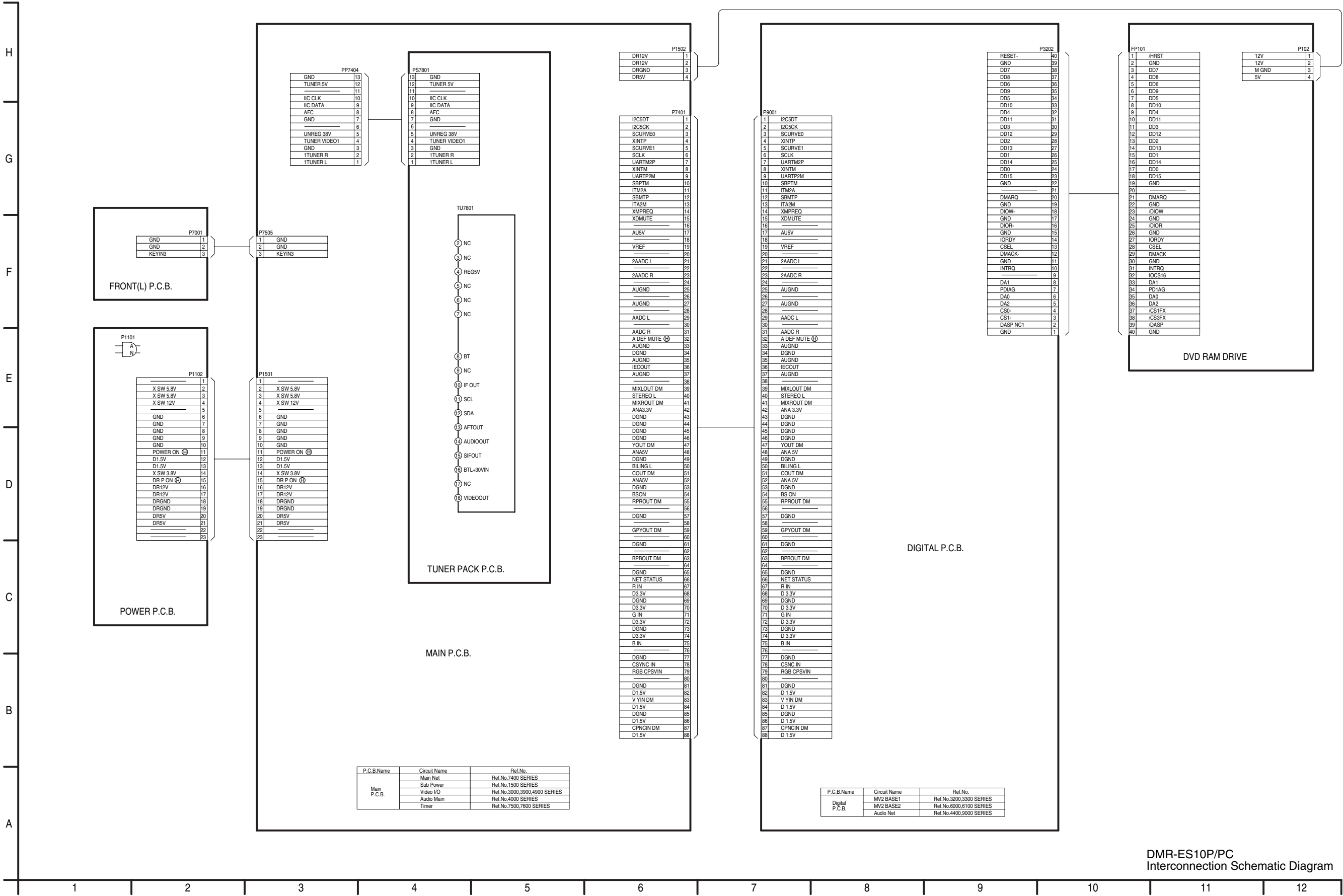






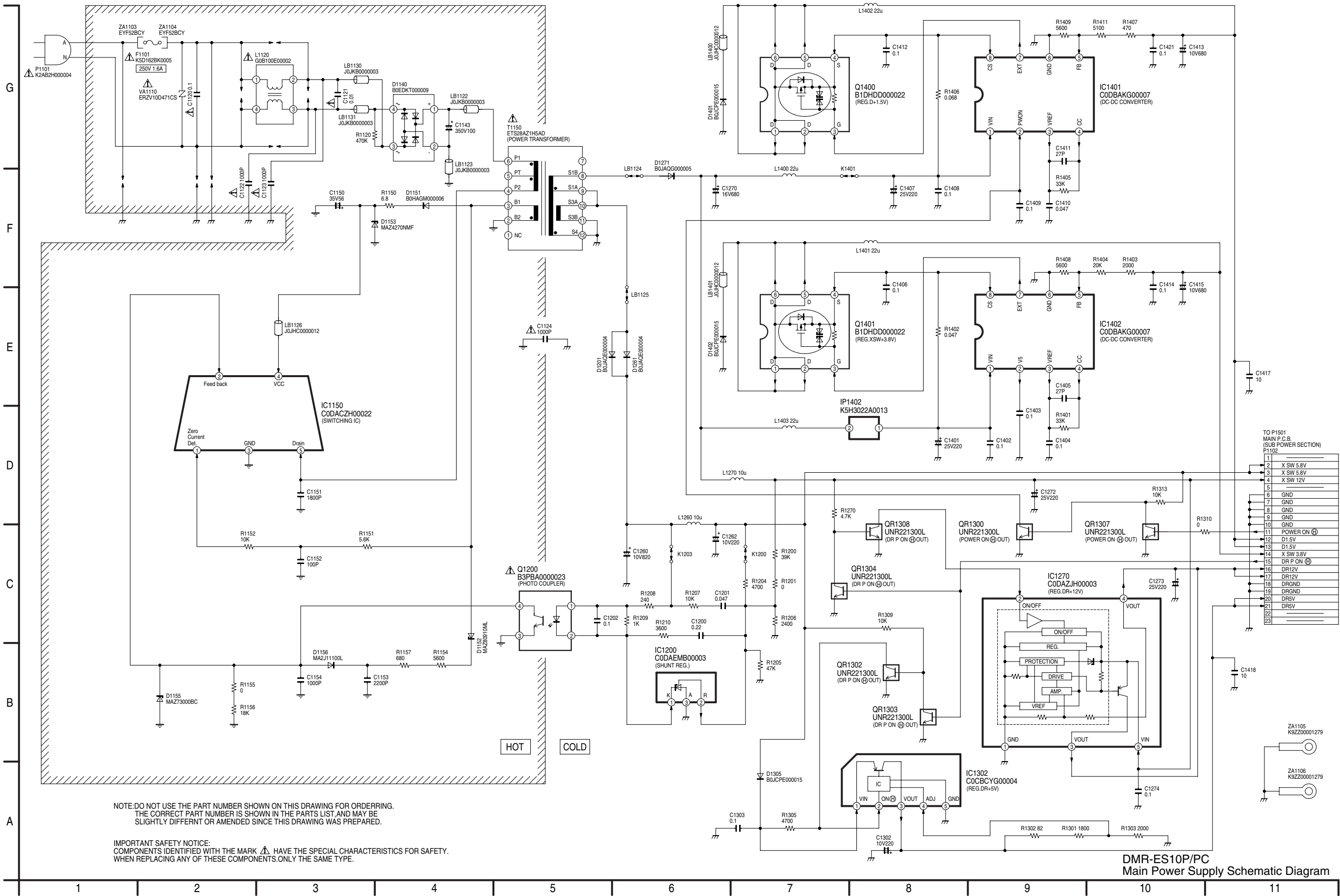
18 Schematic Diagram

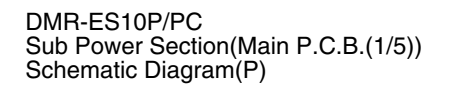
18.1. Interconnection Schematic Diagram



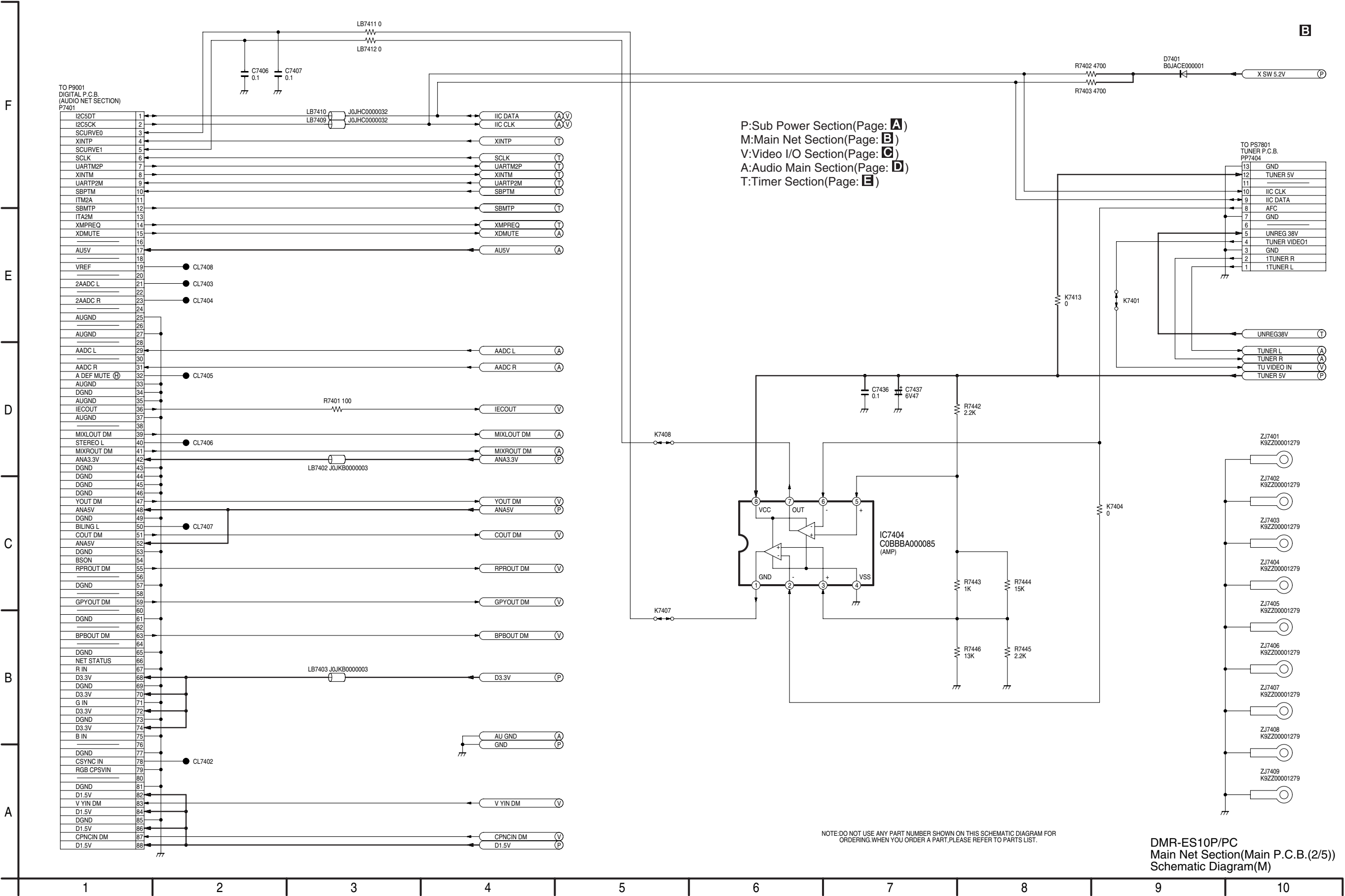
DMR-ES10P/PC  
Interconnection Schematic Diagram

18.2. Main Power Supply Schematic Diagram

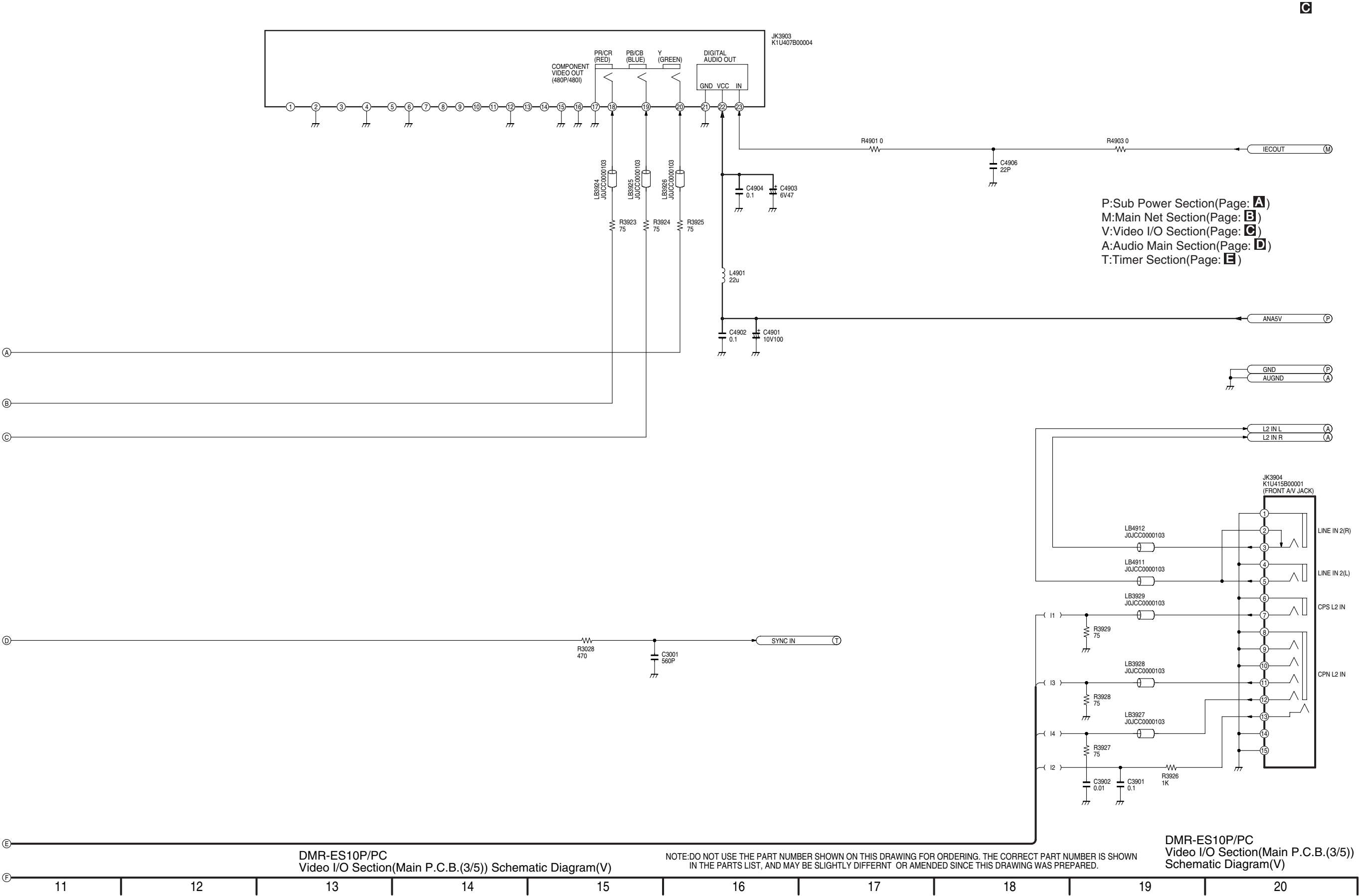




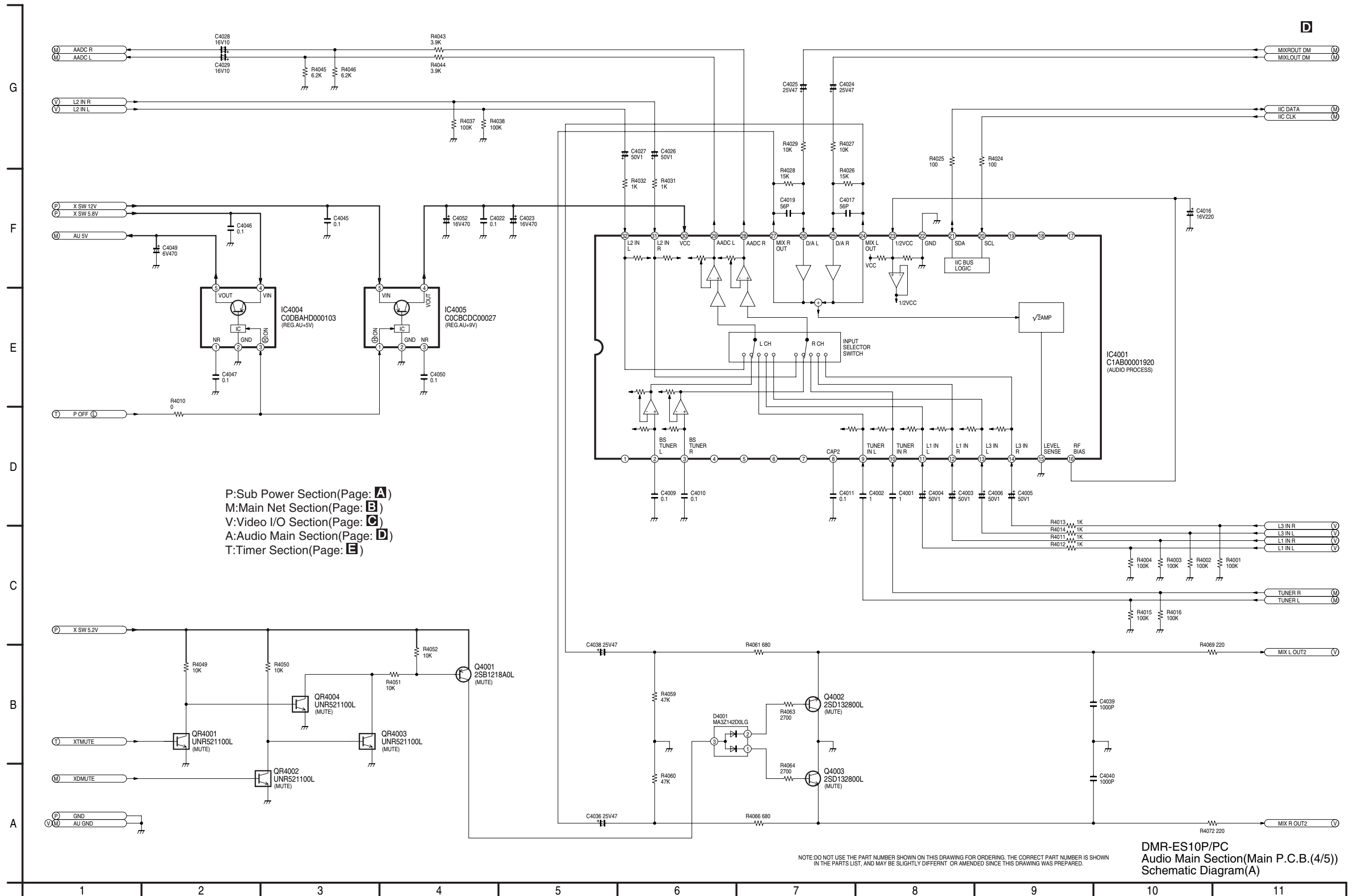
18.4. Main Net Section (Main P.C.B. (2/5)) Schematic Diagram (M)



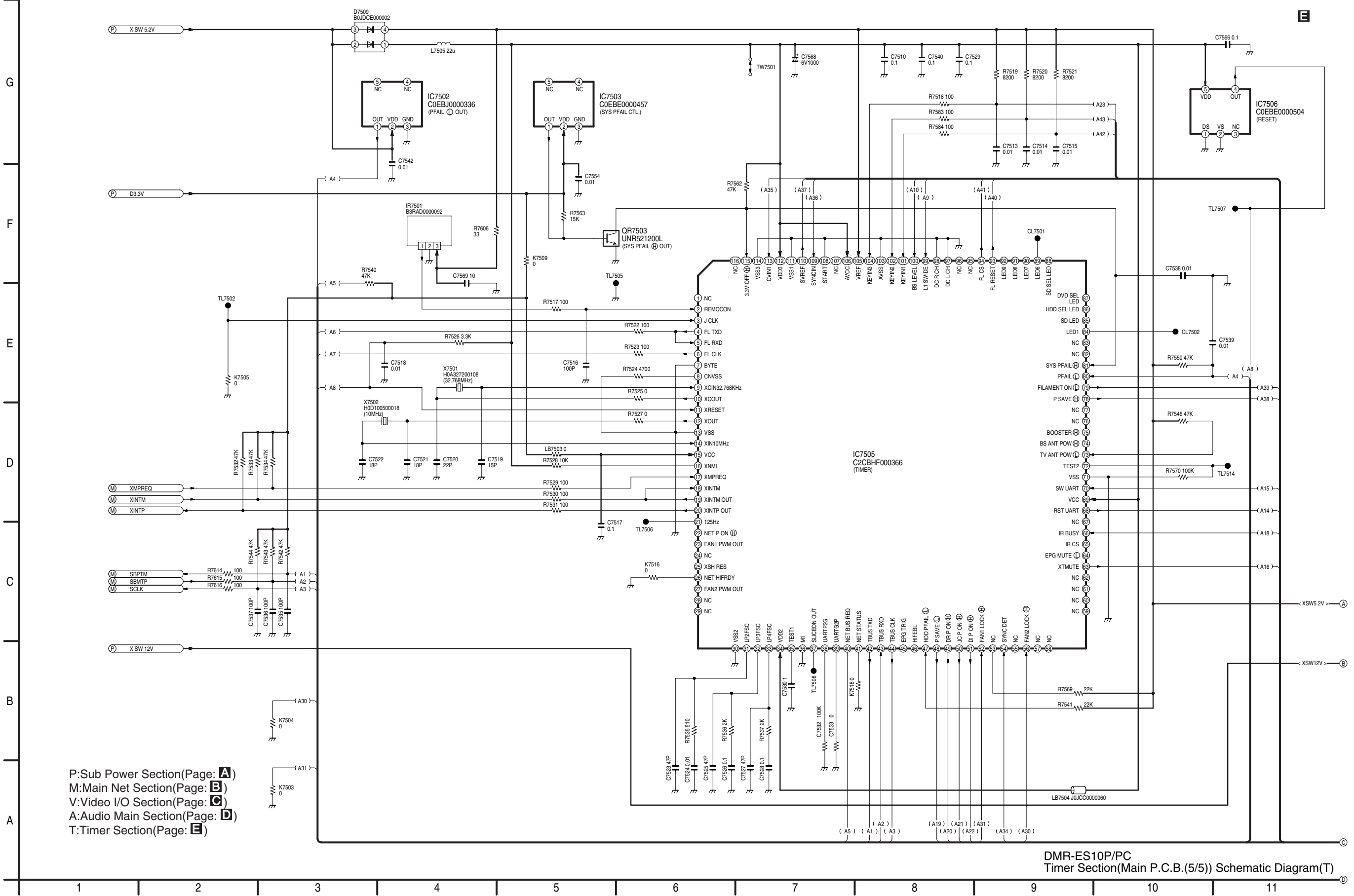




## 18.6. Audio Main Section (Main P.C.B. (4/5)) Schematic Diagram (A)



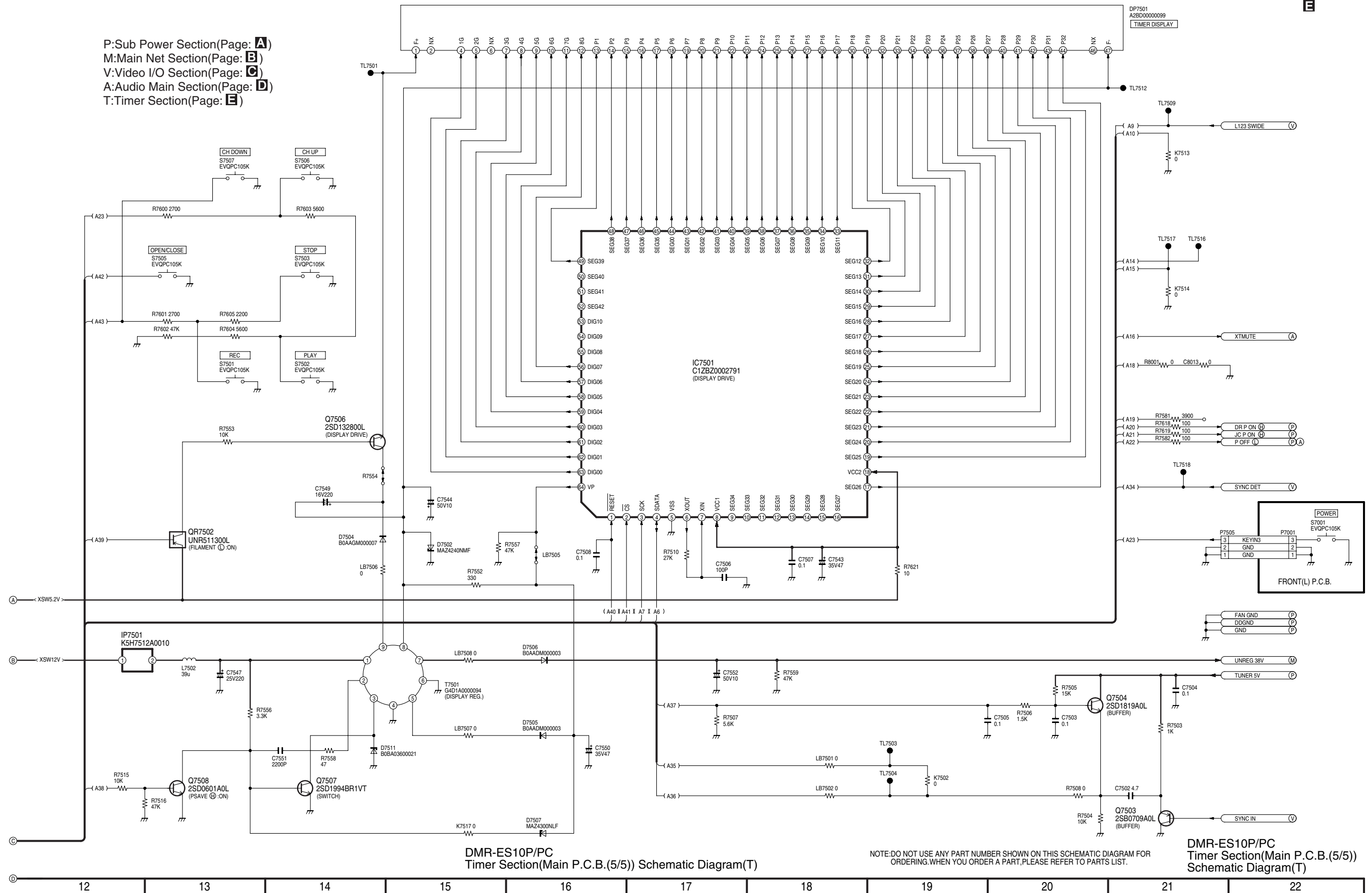
18.7. Timer Section (Main P.C.B. (5/5)) Schematic Diagram (T)



P:Sub Power Section(Page: A)  
M:Main Net Section(Page: B)  
V:Video I/O Section(Page: C)  
A:Audio Main Section(Page: D)  
T:Timer Section(Page: E)

DMR-ES10P/PC  
Timer Section(Main P.C.B.(5/5)) Schematic Diagram(T)

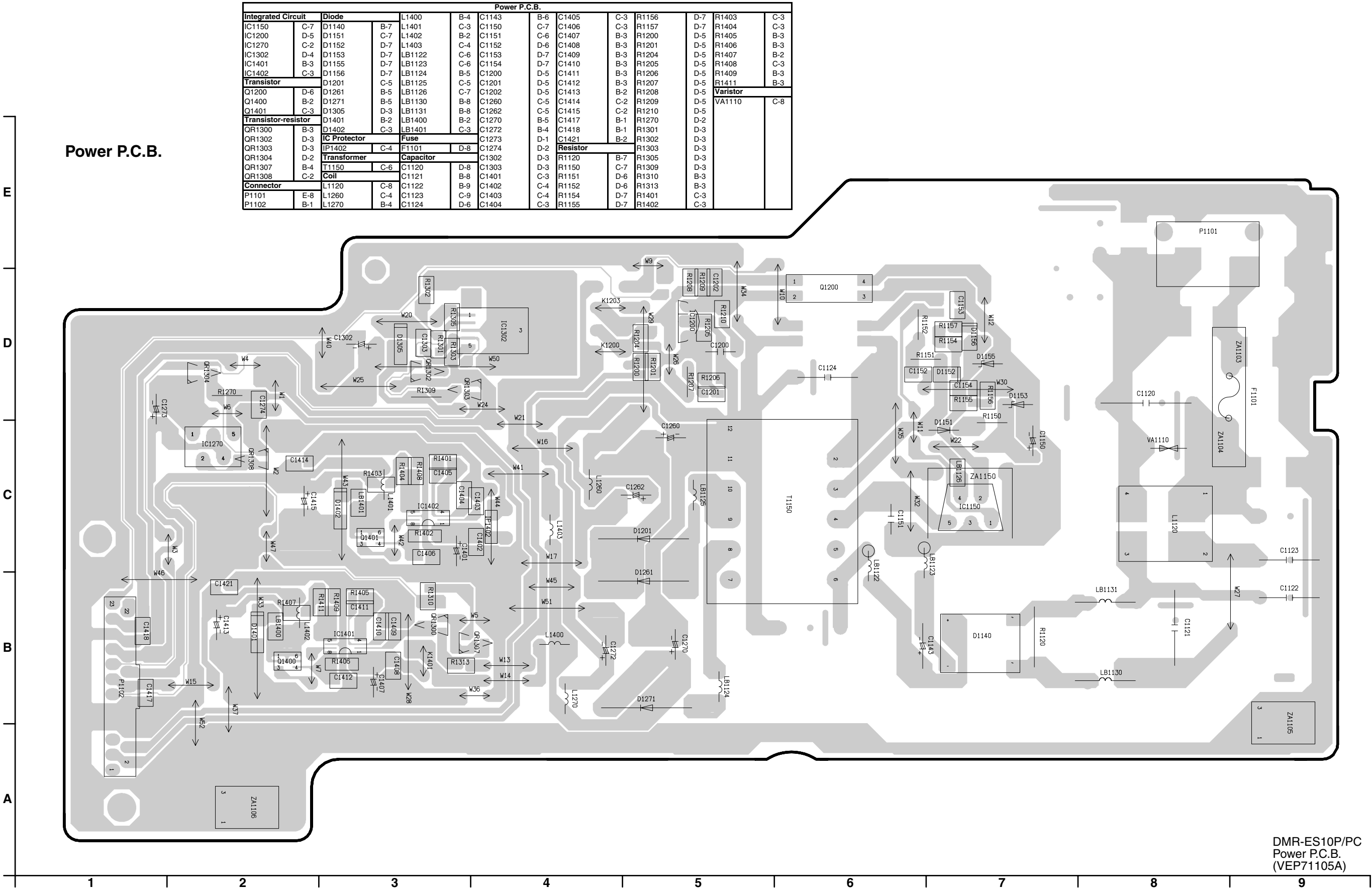






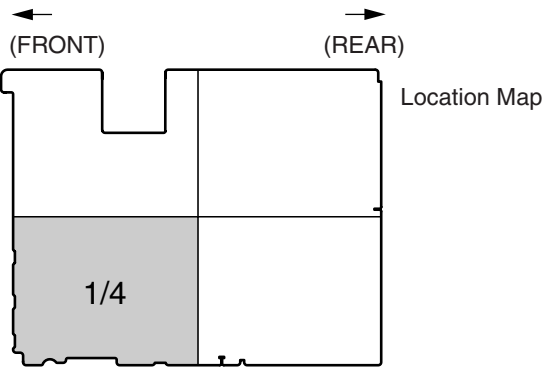
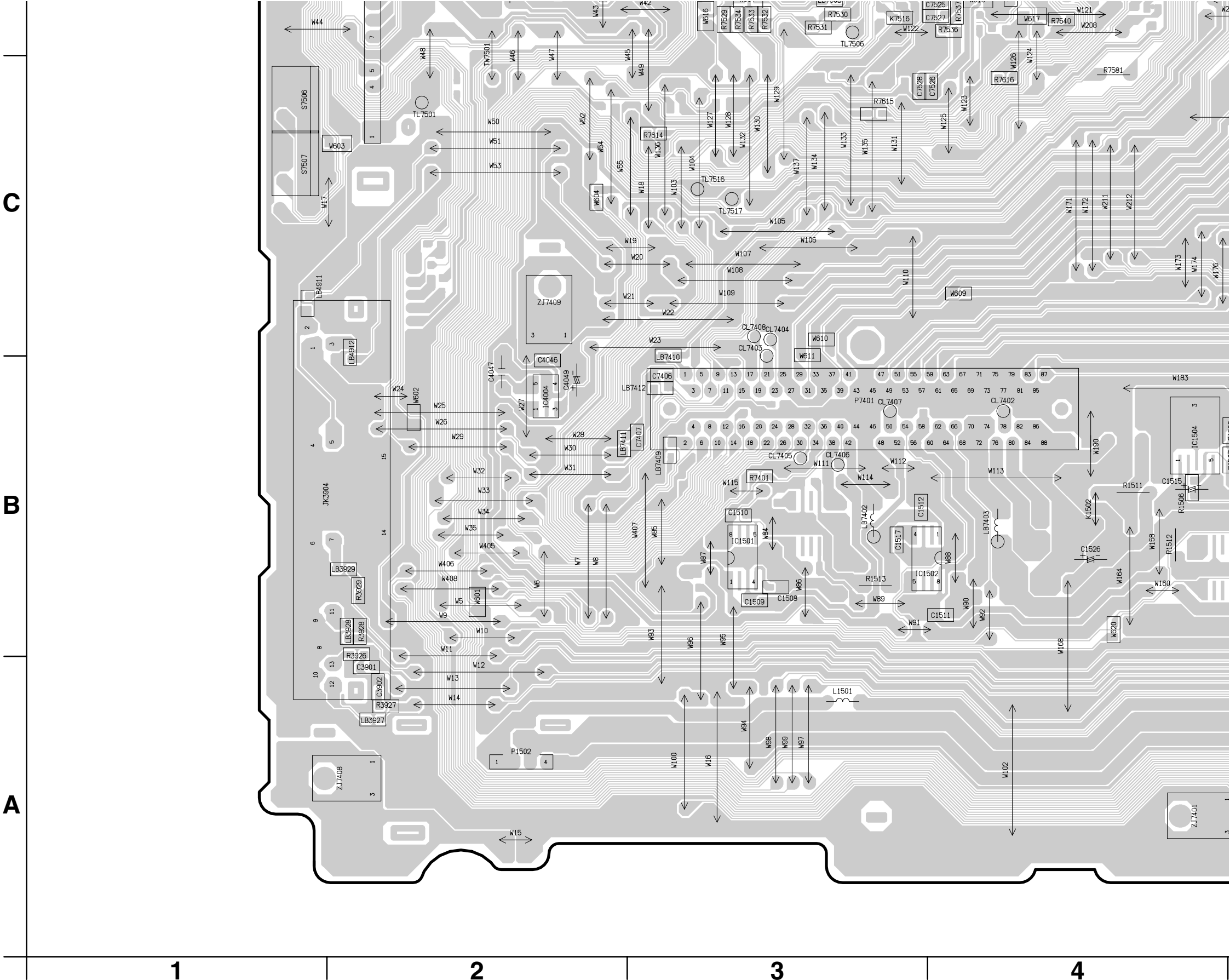
19 Print Circuit Board

19.1. Power P.C.B.



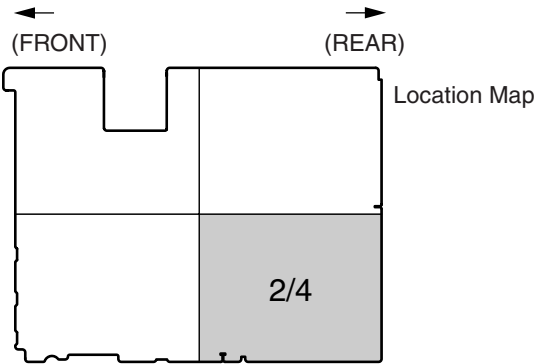
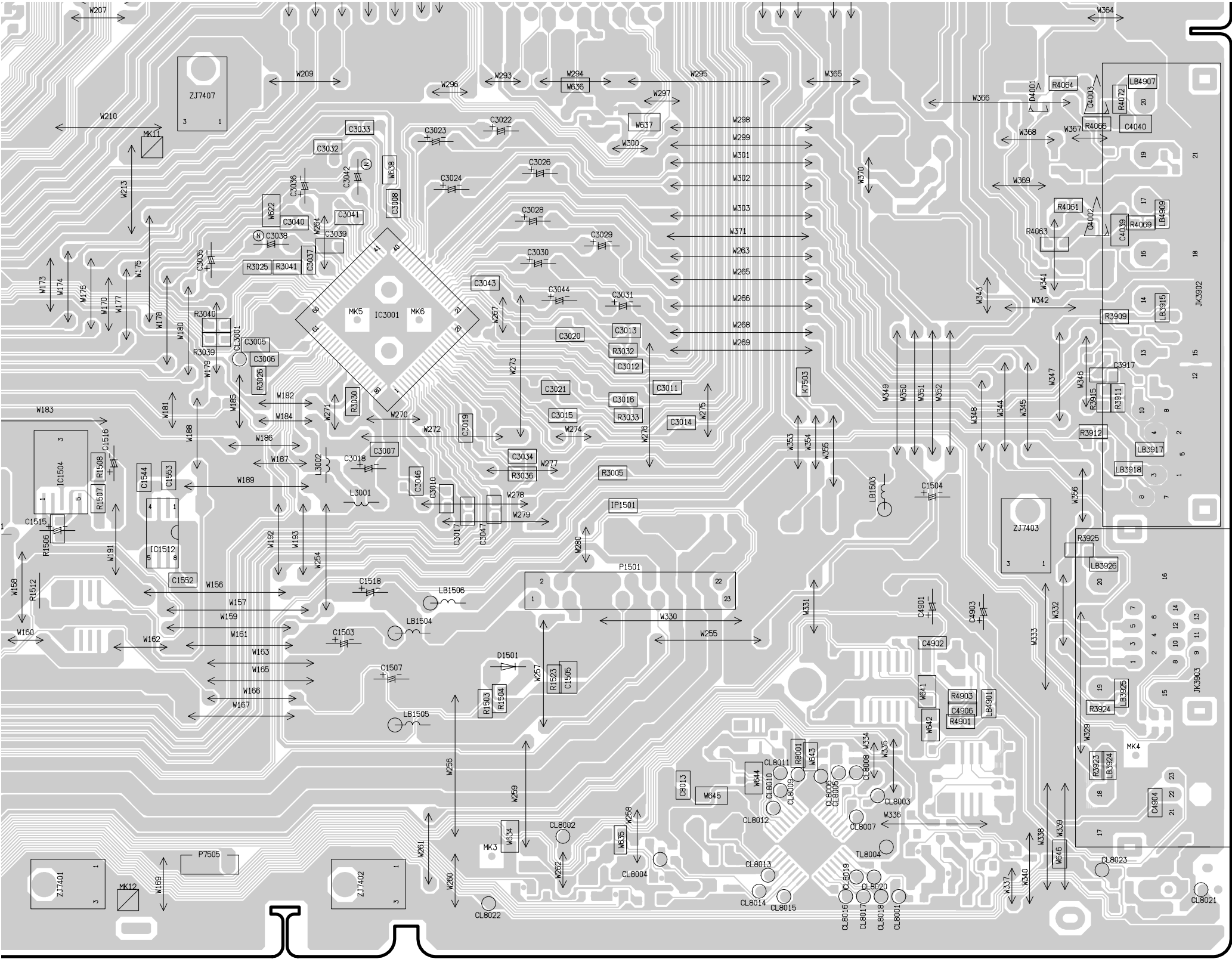
19.2. Main P.C.B.

19.2.1. Main P.C.B. (1/4 Section)



DMR-ES10P/PC  
Main P.C.B. (VEP79111B)  
(1/4 Section)

19.2.2. Main P.C.B. (2/4 Section)



DMR-ES10P/PC  
Main P.C.B. (VEP79111B)  
(2/4 Section)

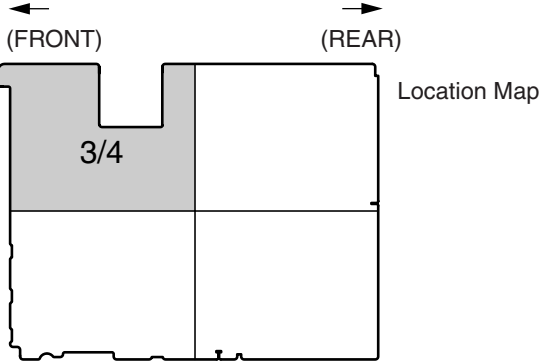
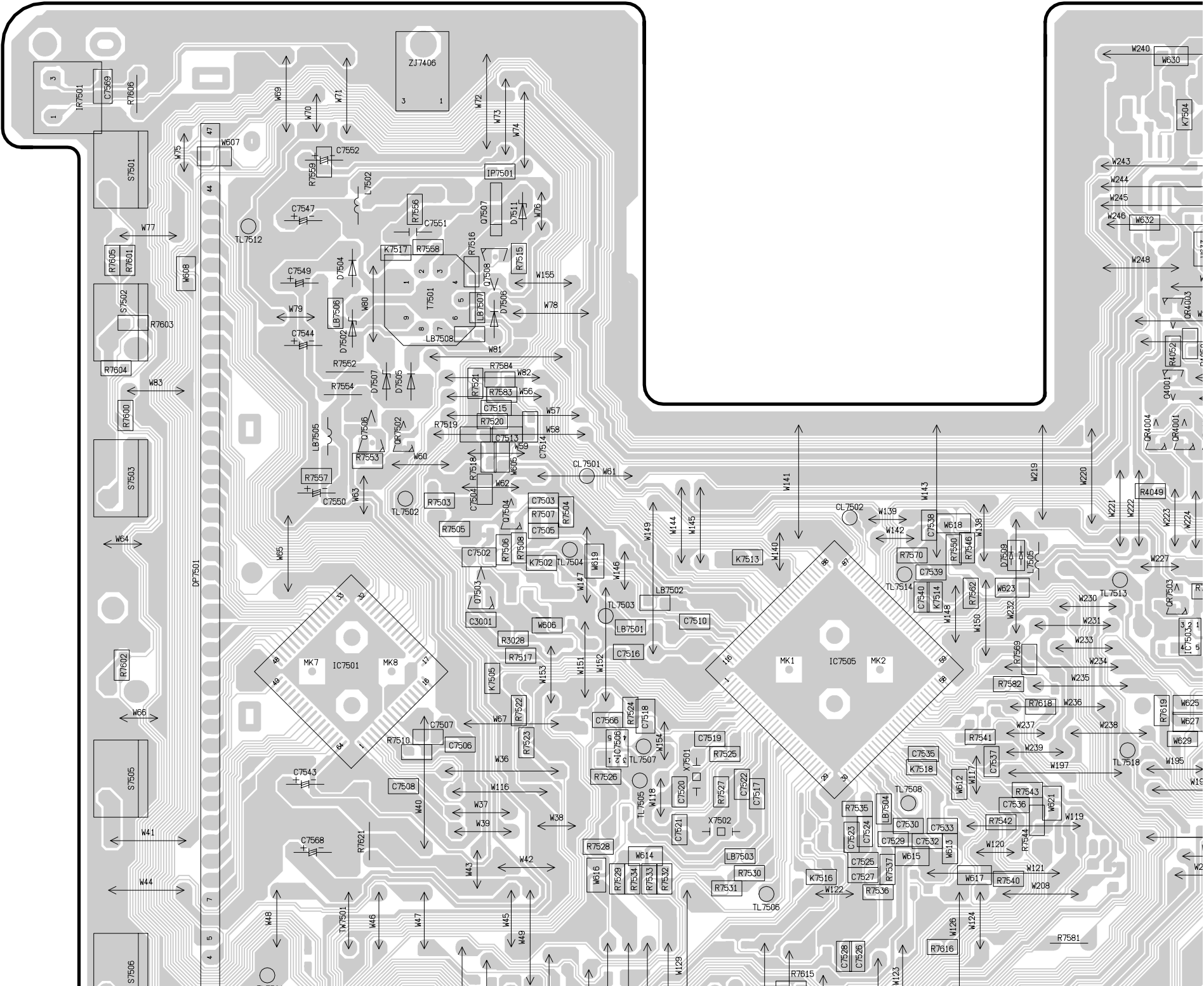


19.2.3. Main P.C.B. (3/4 Section)

F

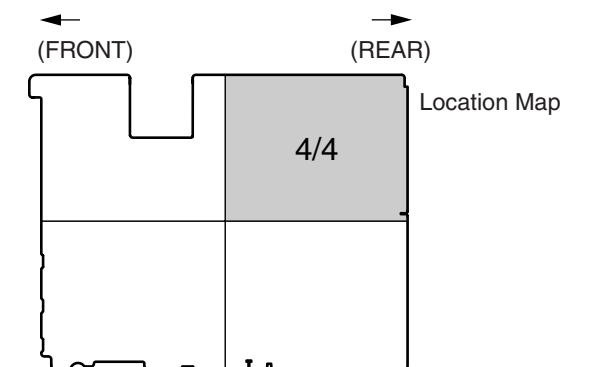
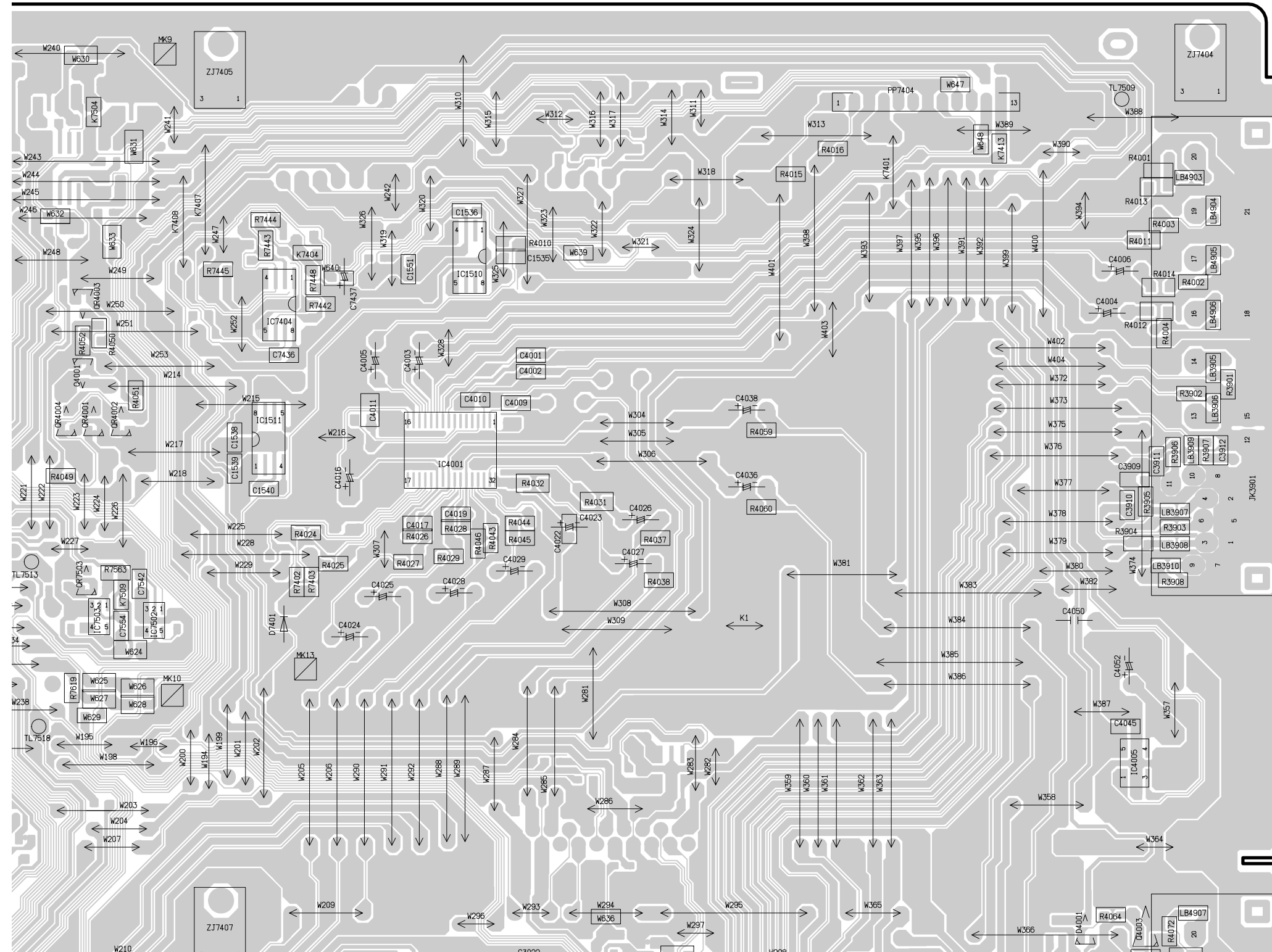
E

D



DMR-ES10P/PC  
Main P.C.B. (VEP79111B)  
(3/4 Section)

#### 19.2.4. Main P.C.B. (4/4 Section)



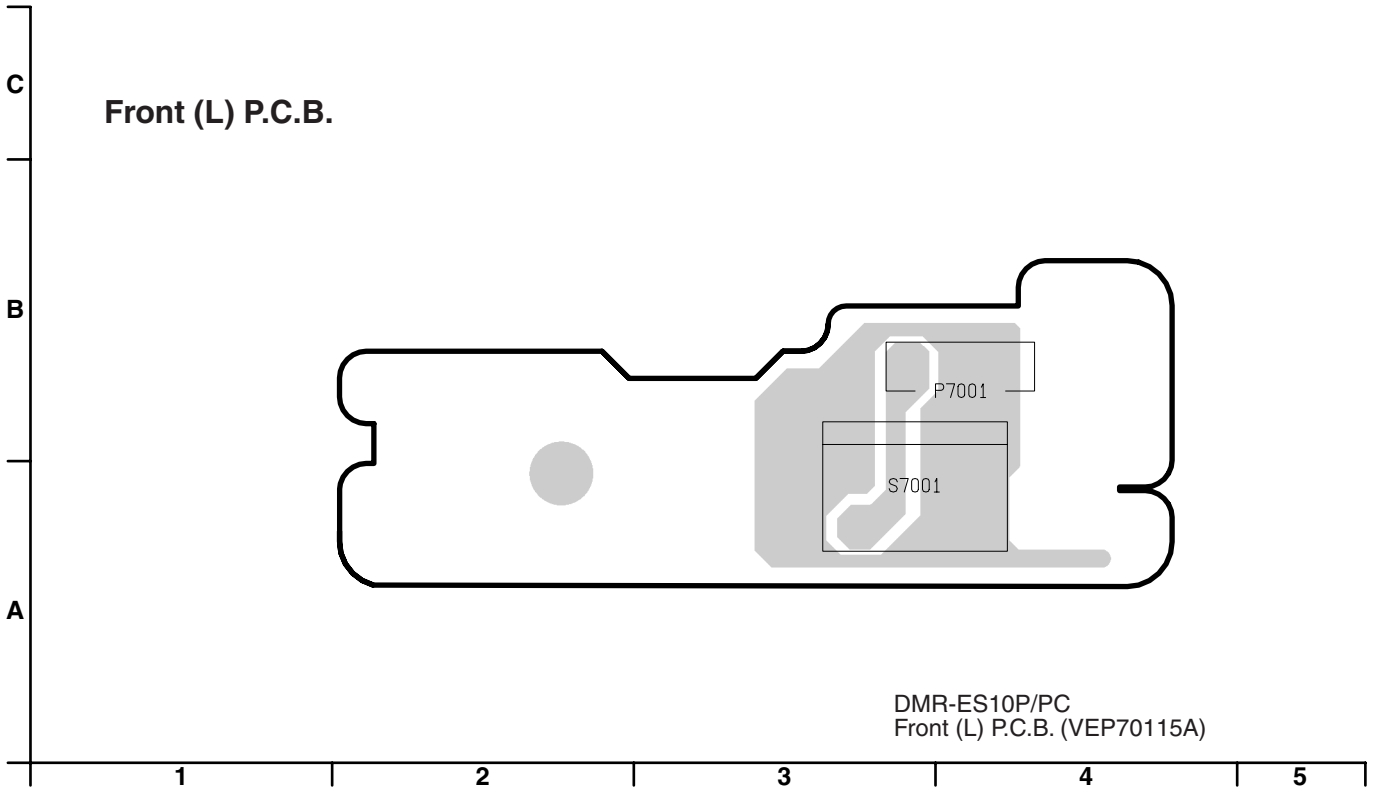
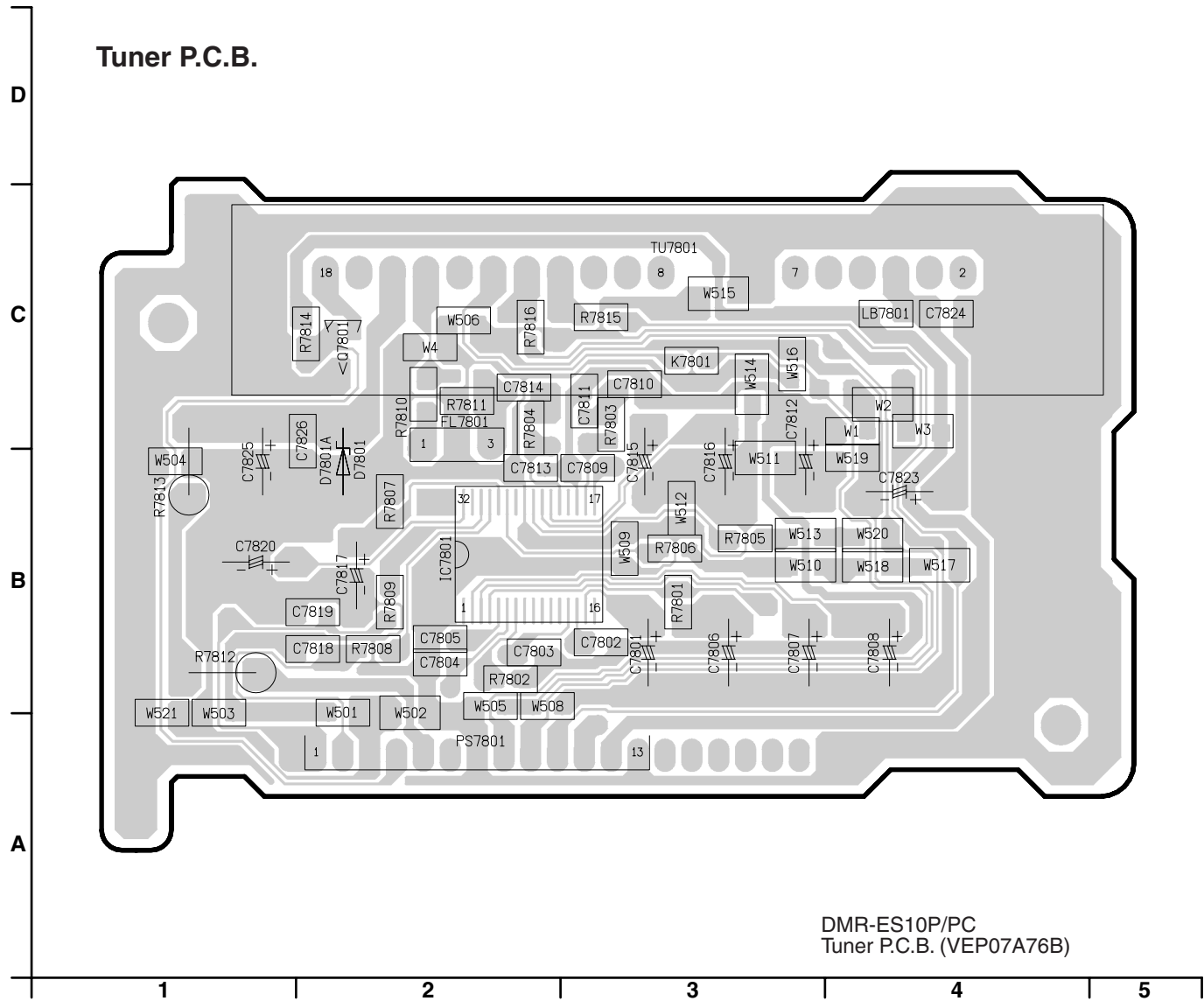
DMR-ES10P/PC  
Main P.C.B. (VEP79111B)  
(4/4 Section)

19.2.5. Main P.C.B. Address Information

Main P.C.B.													
Integrated Circuit		TL7502	E-2	LB3929	B-2	C3028	C-6	C7505	E-3	R3904	E-8	R7508	E-3
IC1501	B-3	TL7503	D-3	LB4903	F-8	C3029	C-6	C7506	D-2	R3905	E-8	R7510	D-2
IC1502	B-3	TL7504	E-3	LB4904	F-8	C3030	C-6	C7507	D-2	R3906	E-8	R7515	E-3
IC1504	B-4	TL7505	D-3	LB4905	E-8	C3031	C-6	C7508	D-2	R3907	E-8	R7516	E-2
IC1510	E-6	TL7506	D-3	LB4906	E-8	C3032	C-5	C7510	D-3	R3908	D-8	R7517	D-3
IC1511	E-5	TL7507	D-3	LB4907	C-8	C3033	C-5	C7513	E-3	R3909	C-8	R7518	E-2
IC1512	B-5	TL7508	D-4	LB4909	C-8	C3034	B-6	C7514	E-3	R3911	B-8	R7519	E-2
IC3001	C-5	TL7509	F-8	LB4911	C-1	C3035	C-5	C7515	E-2	R3912	B-8	R7520	E-2
IC4001	E-6	TL7512	F-2	LB4912	C-2	C3036	C-5	C7516	D-3	R3915	B-8	R7521	E-2
IC4004	B-2	TL7513	D-4	LB7402	B-3	C3037	C-5	C7517	D-3	R3923	A-8	R7522	D-3
IC4005	D-8	TL7514	E-4	LB7403	B-4	C3038	C-5	C7518	D-3	R3924	B-8	R7523	D-3
IC7404	E-5	TL7516	C-3	LB7409	B-3	C3039	C-5	C7519	D-3	R3925	B-8	R7524	D-3
IC7501	D-2	TL7517	C-3	LB7410	C-3	C3040	C-5	C7520	D-3	R3926	B-2	R7525	D-3
IC7502	D-5	TL7518	D-4	LB7411	B-2	C3041	C-5	C7521	D-3	R3927	A-2	R7526	D-3
IC7503	D-4	TL8004	A-7	LB7412	B-3	C3042	C-5	C7522	D-3	R3928	B-2	R7527	D-3
IC7505	D-3	Connector		LB7501	D-3	C3043	C-6	C7523	D-3	R3929	B-2	R7528	D-3
IC7506	D-3	JK3901	E-8	LB7502	D-3	C3044	C-6	C7524	D-4	R4001	F-8	R7529	D-3
Transistor		JK3902	C-8	LB7503	D-3	C3046	B-5	C7525	D-4	R4002	E-8	R7530	D-3
Q4001	E-4	JK3903	B-8	LB7504	D-4	C3047	B-6	C7526	C-4	R4003	E-8	R7531	D-3
Q4002	C-8	JK3904	B-2	LB7505	E-2	C3901	A-2	C7527	D-4	R4004	E-8	R7532	D-3
Q4003	C-8	P1501	B-6	LB7506	E-2	C3902	A-2	C7528	C-3	R4010	E-6	R7533	D-3
Q7503	D-2	P1502	A-2	LB7507	E-2	C3909	E-8	C7529	D-4	R4011	E-8	R7534	D-3
Q7504	E-3	P7001	E-3	LB7508	E-2	C3910	E-8	C7530	D-4	R4012	E-8	R7535	D-4
Q7506	E-2	P7401	B-3	Capacitor		C3911	E-8	C7532	D-4	R4013	F-8	R7536	D-4
Q7507	F-2	P7505	A-5	C1503	B-5	C3912	E-8	C7533	D-4	R4014	E-8	R7537	D-4
Q7508	E-2	PP7404	F-7	C1504	B-7	C3917	C-8	C7535	D-4	R4015	F-7	R7540	D-4
Transistor-resistor		Diode		C1505	B-6	C4001	E-6	C7536	D-4	R4016	F-7	R7541	D-4
QR4001	E-4	D1501	B-6	C1507	B-5	C4002	E-6	C7537	D-4	R4024	E-5	R7542	D-4
QR4002	E-5	D4001	C-7	C1508	B-3	C4003	E-5	C7538	E-4	R4025	D-5	R7543	D-4
QR4003	E-4	D7401	D-5	C1509	B-3	C4004	E-7	C7539	E-4	R4026	E-5	R7544	D-4
QR4004	E-4	D7502	E-2	C1510	B-3	C4005	E-5	C7540	D-4	R4027	D-5	R7546	E-4
QR7502	E-2	D7504	E-2	C1511	B-4	C4006	E-7	C7542	D-5	R4028	E-6	R7550	E-4
QR7503	D-4	D7505	E-2	C1512	B-3	C4009	E-6	C7543	D-2	R4029	E-6	R7552	E-2
Test Point		D7506	E-2	C1515	B-4	C4010	E-6	C7544	E-2	R4031	E-6	R7553	E-2
CL3001	C-5	D7507	E-2	C1516	B-5	C4011	E-5	C7547	F-2	R4032	E-6	R7554	E-2
CL7402	B-4	D7509	E-4	C1517	B-3	C4016	E-5	C7549	E-2	R4037	E-6	R7556	F-2
CL7403	C-3	D7511	F-3	C1518	B-5	C4017	E-5	C7550	E-2	R4038	D-6	R7557	E-2
CL7404	C-3	Crystal Osillator		C1526	B-4	C4019	E-6	C7551	E-2	R4043	E-6	R7558	E-2
CL7405	B-3	X7501	D-3	C1535	E-6	C4022	E-6	C7552	F-2	R4044	E-6	R7559	F-2
CL7406	B-3	X7502	D-3	C1536	F-6	C4023	E-6	C7554	D-5	R4045	E-6	R7562	D-4
CL7407	B-3	IC Protector		C1538	E-5	C4024	D-5	C7566	D-3	R4046	E-6	R7563	D-5
CL7408	C-3	IP1501	B-6	C1539	E-5	C4025	D-5	C7568	D-2	R4049	E-4	R7569	D-4
CL7501	E-3	IP7501	F-2	C1540	E-5	C4026	E-6	C7569	F-1	R4050	E-4	R7570	E-4
CL7502	E-3	Coil		C1544	B-5	C4027	D-6	C8013	A-6	R4051	E-5	R7581	C-4
CL8001	A-7	L1501	A-3	C1551	E-5	C4028	D-6	Resistor		R4052	E-4	R7582	D-4
CL8002	A-6	L3001	B-5	C1552	B-5	C4029	D-6	R1503	B-6	R4059	E-6	R7583	E-2
CL8003	A-7	L3002	B-5	C1553	B-5	C4036	E-6	R1504	B-6	R4060	E-6	R7584	E-2
CL8004	A-6	L4901	B-7	C3001	D-2	C4038	E-6	R1506	B-4	R4061	C-7	R7600	E-1
CL8005	A-7	L7502	F-2	C3005	C-5	C4039	C-8	R1507	B-5	R4063	C-7	R7601	E-1
CL8006	A-7	L7505	E-4	C3006	C-5	C4040	C-8	R1508	B-5	R4064	C-7	R7602	D-1
CL8007	A-7	LB1503	B-7	C3007	B-5	C4045	D-8	R1511	B-4	R4066	C-8	R7603	E-1
CL8008	A-7	LB1504	B-5	C3008	C-5	C4046	B-2	R1512	B-4	R4069	C-8	R7604	E-1
CL8009	A-7	LB1505	A-5	C3010	B-6	C4047	B-2	R1513	B-3	R4072	C-8	R7605	E-1
CL8010	A-7	LB1506	B-6	C3011	C-6	C4049	B-2	R1523	B-6	R4901	A-7	R7606	F-1
CL8011	A-7	LB3905	E-8	C3012	C-6	C4050	D-7	R3005	B-6	R4903	B-7	R7614	C-3
CL8012	A-7	LB3906	E-8	C3013	C-6	C4052	D-8	R3025	C-5	R7401	B-3	R7615	C-3
CL8013	A-7	LB3907	E-8	C3014	B-6	C4901	B-7	R3026	C-5	R7402	D-5	R7616	C-4
CL8014	A-7	LB3908	E-8	C3015	B-6	C4902	B-7	R3028	D-3	R7403	D-5	R7618	D-4
CL8015	A-7	LB3909	E-8	C3016	B-6	C4903	B-7	R3030	B-5	R7442	E-5	R7619	D-4
CL8016	A-7	LB3910	D-8	C3017	B-6	C4904	A-8	R3032	C-6	R7443	E-5	R7621	D-2
CL8017	A-7	LB3915	C-8	C3018	B-5	C4906	B-7	R3033	B-6	R7444	F-5	R8001	A-7
CL8018	A-7	LB3917	B-8	C3019	B-6	C7406	B-3	R3036	B-6	R7445	E-5	Transformer	
CL8019	A-7	LB3918	B-8	C3020	C-6	C7407	B-3	R3039	C-5	R7446	E-5	T7501	E-2
CL8020	A-7	LB3924	A-8	C3021	C-6	C7436	E-5	R3040	C-5	R7503	E-2		
CL8021	A-8	LB3925	B-8	C3022	C-6	C7437	E-5	R3041	C-5	R7504	E-3		
CL8022	A-6	LB3926	B-8	C3023	C-6	C7502	E-2	R3901	E-8	R7505	E-2		
CL8023	A-8	LB3927	A-2	C3024	C-6	C7503	E-3	R3902	E-8	R7506	E-2		
TL7501	C-2	LB3928	B-2	C3026	C-6	C7504	E-2	R3903	E-8	R7507			



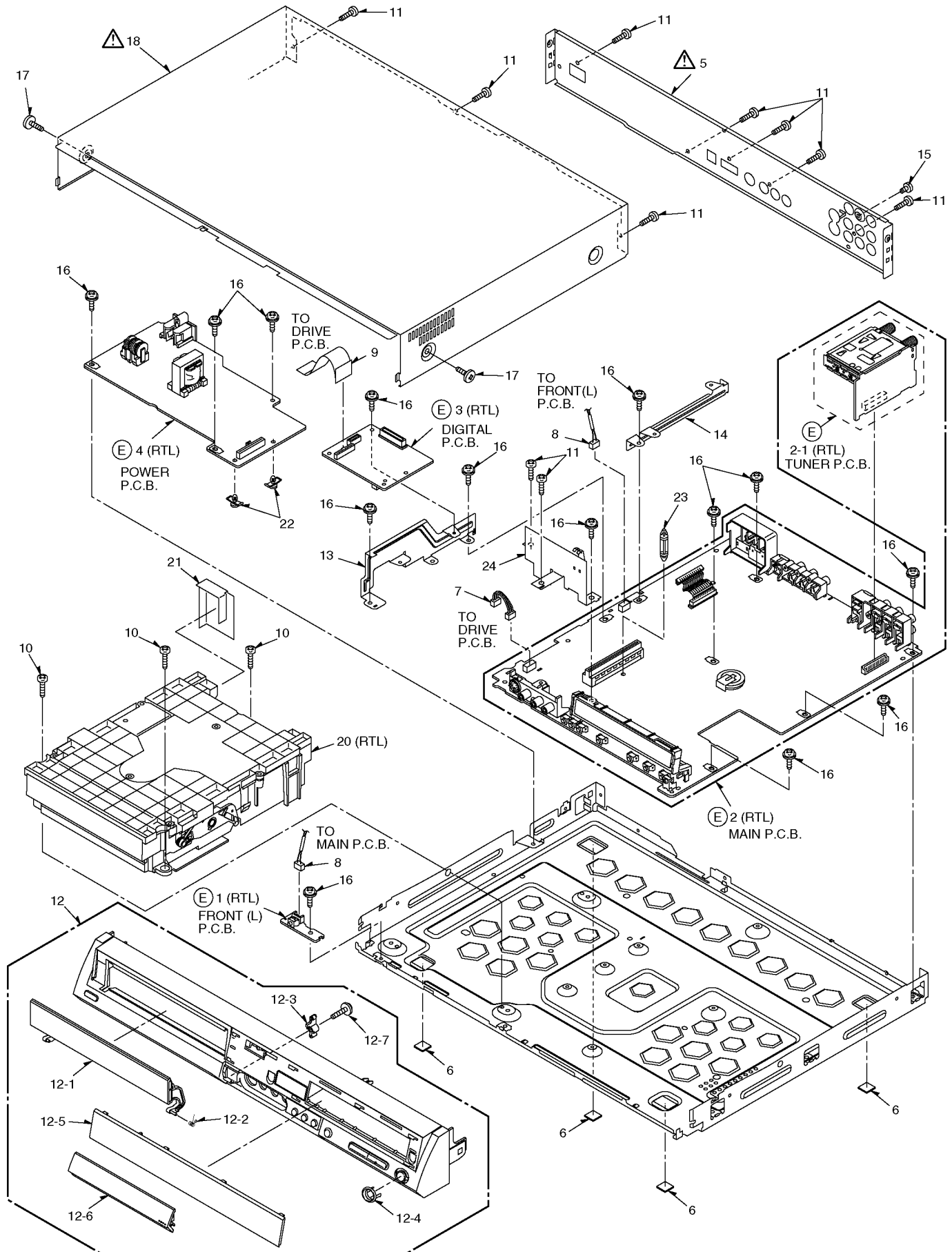
19.3. Tuner P.C.B., Front (L) P.C.B.



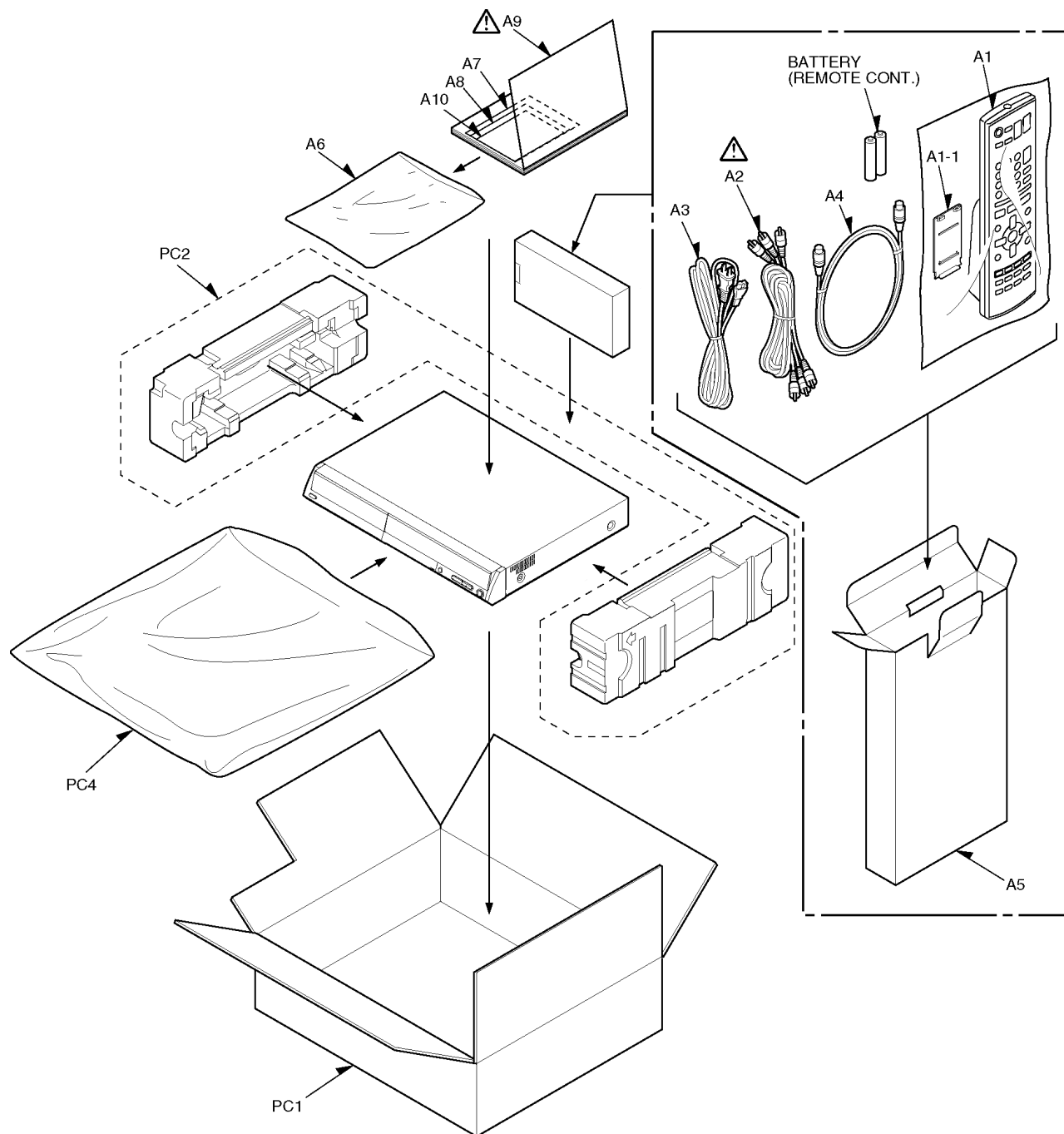


## 20 Exploded Views

### 20.1. Casing Parts & Mechanism Section



## 20.2. Packing & Accessories Section



# 21 Replacement Parts List

## Notes:

\*Important safety notice:

Components identified by  $\triangle$  mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufactures specified parts shown in the parts list.

\*Warning: This product uses a laser diode. Refer to caution statements.

\*Capacity values are in microfarads ( $\mu$ F) unless specified otherwise, P=Pico-farads (pF), F=Farads (F).

\*Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM).

\*The marking (RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

\*“<IA>-<IB>”, marks in Remarks indicate languages of instruction manuals. [<IA>: Canadian French, <IB>: English French]

\*All parts except parts mentioned [SPC] in the Remarks column are supplied from PAVCSG.

\*Parts mentioned [SPC] are supplied from PAVC

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
n	01	CASING/ACCESSORY/PACKING		
1	VEP70115A	FRONT(L) P.C.B.		(RTL)
2	VEP79111B	MAIN P.C.B.	1	(RTL)
2-1	VEP07A76B	TUNER P.C.B.	1	(RTL)
3	VEP79104A	DIGITAL P.C.B.	1	(RTL) (P)
3	RFKBES10PC	DIGITAL P.C.B.	1	(RTL) (PC)
4	VEP71105A	POWER SUPPLY P.C.B.	1	(RTL)
5	RGR0354B-A	REAR PANEL	1	(P) $\triangle$
5	RGR0354B-B	REAR PANEL	1	(PC) $\triangle$
6	RKA0166-T	FOOT RUBBER	4	
7	VEE1A60	WIRE WITH CONNECTOR (4P)	1	
8	VEE1B41	WIRE WITH CONNECTOR (2P)	1	
9	VWJ1775	FFC (40P)	1	
10	RHD30115	SCREW	3	
11	RHD30119-S	SCREW	10	
12	RYP1268A-S	FRONT PANEL ASS'Y1	1	(P-S) (PC)
12	RYP1268A-K	FRONT PANEL ASS'Y1	1	(P-K)
12-1	RKF0728-K	TRAY DOOR	1	
12-2	VMB3410	TRAY SPRING	1	
12-3	RMR1698-S	SHAFT HOLDER	1	
12-4	RGK1885-S	REC BUTTON RING	1	
12-5	RGK1886-Q	FL ORNAMENT	1	
12-6	RKF0729A-S	PANEL DOOR	1	(P-S) (PC)
12-6	RKF0729A-K	PANEL DOOR	1	(P-K)
12-7	RHD26045	SCREW	1	
13	RMA1909	DIGITAL ANGLE	1	
14	RMA1913	POWER P.C.B. ANGLE	1	
15	XSN3+4FJ	SCREW	1	
16	RHDX30005	SCREW	14	
17	RHD30113	SCREW	2	(P-S) (PC)
17	RHD30113-1K	SCREW	2	(P-K)
18	RKM0532-S	TOP CASE	1	(P-S) (PC) $\triangle$
18	RKM0532-K	TOP CASE	1	(P-K) $\triangle$

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
20	RFKNVXY1867	RAM DRIVE UNIT	1	(RTL) (SPC)
21	RMV0302	BARRIER	1	(SPC)
22	RMX0323	PCB SPACER	2	
23	RMX0298	PCB SPACER	1	
24	RXQ1325	FRONT ANGLE	1	
A1	N2QAKB000055	REMOTE CONTROL ASS'Y	1	
A1-1	BNL11M201B	BATTERY COVER	1	
A2	K2CB2CB00006	AC CORD	1	$\triangle$
A3	K2KA6CA00001	AV CORD	1	
A4	K2KZ2BA00001	RF COAXIAL CABLE	1	
A5	RPQF0220	ACCESSORY CASE	1	
A6	RPF0067	POLYETHYLENE BAG (F.B.)	1	
A7	RQCA1004	DISC CAUTION SHEET	1	
A8	RQCB0833	CCP SHEET	1	
A9	RQT8010-C	OPERATING INSTRUCTIONS	1	<IA> (PC) $\triangle$
A9	RQT8009-P	OPERATING INSTRUCTIONS	1	<IB> $\triangle$
A10	RQCC2431	DVD MEDIA SHEET	1	
F1101	K5D162BK0005	FUSE	1	$\triangle$
PC1	RPG7504	PACKING CASE	1	(P-S)
PC1	RPG7603	PACKING CASE	1	(P-K)
PC1	RPG7505	PACKING CASE	1	(PC)
PC2	RPN1790	CUSHION	1	
PC4	VPF0505	POLYETHYLENE BAG (UNIT)	1	
n	02	VEP79111B		(MAIN P.C.B.)
B7501	N4BCT50A0005	BATTERY	1	
C1503	F2A1A2210063	10V 220U	1	
C1504	F2A1E1010067	25V 100U	1	
C1505	F1J0J106A014	6.3V 10U	1	
C1507	F2A1A101A389	10V 100U	1	
C1508	ECJ1VB1H103K	50V 0.01U	1	
C1509	ECJ1VB0J105K	6.3V 1U	1	
C1510	ECJ1VB1A105K	10V 1U	1	
C1511,1	ECJ1VB0J105K	6.3V 1U	2	
C1515,1	F2A1A470A388	10V 47U	2	
C1517	ECJ1VC1H331J	50V 330	1	
C1518	F2A1A101A389	10V 100U	1	
C1526	F2A1A470A388	10V 47U	1	
C1535	ECJ1VB1A105K	10V 1U	1	
C1536	ECJ1VB0J105K	6.3V 1U	1	
C1538	ECJ1VB1A105K	10V 1U	1	
C1539	ECJ1VB0J105K	6.3V 1U	1	
C1540	ECJ1VB1H103K	50V 0.01U	1	
C1544	ECJ1VB1H103K	50V 0.01U	1	
C1551	ECJ1VB1H103K	50V 0.01U	1	
C1552	ECJ1VB1A105K	10V 1U	1	
C1553	ECJ1VB0J105K	6.3V 1U	1	
C3001	ECJ1VC1H561J	50V 560P	1	
C3005	ECJ1VB1C333K	16V 0.033U	1	
C3006-08	ECJ1VB1C104K	16V 0.1U	3	
C3010-17	ECJ1VB1H103K	50V 0.01U	8	
C3018	F2A0J470A245	6.3V 47U	1	
C3019-21	ECJ1VB1H103K	50V 0.01U	3	
C3022	F2A0J471A247	6.3V 470U	1	
C3023	F2A0J470A245	6.3V 47U	1	
C3024	F2A0J331A247	6.3V 330U	1	
C3026	F2A0J331A247	6.3V 330U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3028	F2A0J470A245	6.3V 47U	1	
C3029	F2A0J471A247	6.3V 470U	1	
C3030	F2A0J470A245	6.3V 47U	1	
C3031	F2A0J471A247	6.3V 470U	1	
C3032-34	ECJ1VB1H103K	50V 0.01U	3	
C3035	ECEA0JKA220B	6.3V 22U	1	
C3036	ECEA1CKA100B	16V 10U	1	
C3037	ECJ1VB1C104K	16V 0.1U	1	
C3038	ECEA0JKN470B	6.3V 47U	1	
C3039	ECJ1VB1C104K	16V 0.1U	1	
C3040	ECJ1VB1H103K	50V 0.01U	1	
C3041	ECJ1VB1C104K	16V 0.1U	1	
C3042	ECEA0JKN470B	6.3V 47U	1	
C3043	ECJ1VB1H103K	50V 0.01U	1	
C3044	F2A0J470A245	6.3V 47U	1	
C3046,47	ECJ1VB1H103K	50V 0.01U	2	
C3901	ECJ1VB1C104K	16V 0.1U	1	
C3902	ECJ1VB1H103K	50V 0.01U	1	
C3909	ECJ1VB1H103K	50V 0.01U	1	
C3910,11	ECJ1VB1C104K	16V 0.1U	2	
C3912	ECJ1VB1H103K	50V 0.01U	1	
C3917	ECJ1VB1H103K	50V 0.01U	1	
C4001,02	ECJ1VB1C105K	16V 1U	2	
C4003-06	F2A1H1R0A236	50V 1U	4	
C4009,10	ECJ1VF1C104Z	16V 0.1U	2	
C4011	ECJ2VB1E104K	25V 0.1U	1	
C4016	ECA1CM221B	16V 220U	1	
C4017	ECJ1VC1H560J	50V 56P	1	
C4019	ECJ1VC1H560J	50V 56P	1	
C4022	ECJ1VF1C104Z	16V 0.1U	1	
C4023	ECA1CAM471XB	16V 470U	1	
C4024,25	F2A1E470A205	25V 47U	2	
C4026,27	F2A1H1R0A236	50V 1U	2	
C4028,29	F2A1C100A019	16V 10U	2	
C4036	F2A1E470A205	25V 47U	1	
C4038	F2A1E470A205	25V 47U	1	
C4039,40	ECJ2VC1H102J	50V 1000P	2	
C4045,46	ECJ1VF1C104Z	16V 0.1U	2	
C4047	ECQV1H104JL3	50V 0.1U	1	
C4049	F2A0J471A247	6.3V 470U	1	
C4050	ECQV1H104JL3	50V 0.1U	1	
C4052	ECA1CAM471XB	16V 470U	1	
C4901	F2A1A101A206	10V 100U	1	
C4902	ECJ1VF1C104Z	16V 0.1U	1	
C4903	F2A0J470A599	6.3V 47U	1	
C4904	ECJ1VF1C104Z	16V 0.1U	1	
C4906	ECJ1VC1H220J	50V 22P	1	
C7406,07	ECJ1VB1C104K	16V 0.1U	2	
C7436	ECJ1VB1C104K	16V 0.1U	1	
C7437	F2A0J470A013	6.3V 47U	1	
C7502	F1J0J475A008	6.3V 4.7U	1	
C7503	ECJ1VB1C104K	16V 0.1U	1	
C7504	ECJ1VF1C104Z	16V 0.1U	1	
C7505	ECJ1VB1C104K	16V 0.1U	1	
C7506	ECJ1VC1H101J	50V 100P	1	
C7507	ECJ1VF1C104Z	16V 0.1U	1	
C7508	ECJ1VB1C104K	16V 0.1U	1	
C7510	ECJ1VF1C104Z	16V 0.1U	1	
C7513-15	ECJ1VB1H103K	50V 0.01U	3	
C7516	ECJ1VC1H101J	50V 100P	1	
C7517	ECJ1VF1C104Z	16V 0.1U	1	
C7518	ECJ2VB1H103K	50V 0.01U	1	
C7519	ECJ1VC1H150J	50V 15P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C7520	ECJ1VC1H220J	50V 22P	1	
C7521,22	ECJ1VC1H180J	50V 18P	2	
C7523	ECJ1VC1H470J	50V 47P	1	
C7524	ECJ1VB1H103K	50V 0.01U	1	
C7525	ECJ1VC1H470J	50V 47P	1	
C7526	ECJ1VB1C104K	16V 0.1U	1	
C7527	ECJ1VC1H470J	50V 47P	1	
C7528	ECJ1VB1C104K	16V 0.1U	1	
C7529	ECJ1VF1C104Z	16V 0.1U	1	
C7530	ECJ1VF1A105Z	10V 1U	1	
C7533	ERJ3GEY0R00V	1/10W 0	1	
C7535-37	ECJ1VC1H101J	50V 100P	3	
C7538,39	ECJ1VB1H103K	50V 0.01U	2	
C7540	ECJ1VF1C104Z	16V 0.1U	1	
C7542	ECJ1VB1H103K	50V 0.01U	1	
C7543	F2A1V470A533	35V 47U	1	
C7544	F2A1H100A637	50V 10U	1	
C7547	F2A1E221A586	25V 220U	1	
C7549	F2A1C2210077	16V 220U	1	
C7550	F2A1V470A533	35V 47U	1	
C7551	ECQB1H222KF3	50V 2200P	1	
C7552	F2A1H100A637	50V 10U	1	
C7554	ECJ1VB1H103K	50V 0.01U	1	
C7566	ECJ1VB1C104K	16V 0.1U	1	
C7568	F2A0J102A581	6.3V 1000U	1	
C7569	ECJ2FF1A106Z	10V 10U	1	
D1501	MA2C165001VT	DIODE	1	
D4001	MA3Z142D0LG	DIODE	1	
D7401	B0JACE000001	DIODE	1	
D7502	MAZ4240NMF	DIODE	1	
D7504	B0AAGM000007	DIODE	1	
D7505,06	B0AADM000003	DIODE	2	
D7507	MAZ4300NLF	DIODE	1	
D7509	B0JDCE000002	DIODE	1	
D7511	B0BA03600021	DIODE	1	
DP7501	A2BD00000099	FL DISPLAY TUBE	1	
IC1501	C0CBCDD00006	IC	1	
IC1502	C0CBCBD00018	IC	1	
IC1504	C0CBCYG00004	IC	1	
IC1510	C0CBCDD00006	IC	1	
IC1511	C0CBCDD00008	IC	1	
IC1512	C0CBCDD00006	IC	1	
IC3001	C1AB00001979	IC	1	
IC4001	C1AB00001920	IC	1	
IC4004	C0DBAHD00013	IC	1	
IC4005	C0CBCDC00027	IC	1	
IC7404	C0BBBA000085	IC	1	
IC7501	C0HBB0000033	IC	1	
IC7502	C0EBJ0000336	IC	1	
IC7503	C0EBE0000457	IC	1	
IC7505	C2CBHF000366	IC	1	
IC7506	C0EBE0000218	IC	1	
IP1501	K5H302100004	IC PROTECTOR	1	△
IP7501	K5H7512A0010	IC PROTECTOR	1	△
IR7501	B3RAD0000092	REMOTE SENSOR	1	
JK3901	K1U822B00003	JACK, L1/L3	1	
JK3902	K1U412B00001	JACK, OUT	1	
JK3903	K1U407B00004	JACK, AV OUT/OPTICAL OUT	1	
JK3904	K1U415B00001	JACK, L2	1	
K7404	ERJ3GEY0R00V	1/10W 0	1	
K7413	ERJ3GEY0R00V	1/10W 0	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
K7502-05	ERJ3GEY0R00V	1/10W 0	4	
K7509	ERJ3GEY0R00V	1/10W 0	1	
K7511	ERJ3GEY0R00V	1/10W 0	1	
K7513,14	ERJ3GEY0R00V	1/10W 0	2	
K7516-18	ERJ3GEY0R00V	1/10W 0	3	
L1501	G0A220GA0026	COIL 22UH	1	
L3001,02	ELEXT220JBV	COIL 22UH	2	
L4901	ELESN220KA	COIL 22UH	1	
L7502	ELESN390JA	COIL 39UH	1	
L7505	G0C220JA0019	COIL 22UH	1	
LB1503-06	J0JKB0000003	COIL	4	
LB3905-10	J0JCC0000103	COIL	6	
LB3915	J0JCC0000103	COIL	1	
LB3917,18	J0JCC0000103	COIL	2	
LB3924-29	J0JCC0000103	COIL	6	
LB4903-07	J0JCC0000103	COIL	5	
LB4909	J0JCC0000103	COIL	1	
LB4911,12	J0JCC0000103	COIL	2	
LB7402,03	J0JKB0000003	COIL	2	
LB7409,10	J0JHC0000032	COIL	2	
LB7411,12	ERJ3GEY0R00V	1/10W 0	2	
LB7501-03	ERJ3GEY0R00V	1/10W 0	3	
LB7504	J0JCC0000060	COIL	1	
LB7506-08	ERJ3GEY0R00V	1/10W 0	3	
P1501	K1KA23A00003	CONNECTOR (23P)	1	
P1502	K1KA04A00196	CONNECTOR (4P)	1	
P7401	K1KA88A00002	CONNECTOR (88P)	1	
P7505	K1KA03A00173	CONNECTOR (3P)	1	
PP7404	K1KA13A00041	CONNECTOR (MALE) 13P	1	
Q4001	2SB1218A0L	TRANSISTOR	1	
Q4002,03	2SD132800L	TRANSISTOR	2	
Q7503	2SB0709A0L	TRANSISTOR	1	
Q7504	2SD1819A0L	TRANSISTOR	1	
Q7506	2SD132800L	TRANSISTOR	1	
Q7507	2SD1994BR1VT	TRANSISTOR	1	
Q7508	2SD0601A0L	TRANSISTOR	1	
QR4001-04	UNR521100L	TRANSISTOR	4	
QR7502	UNR511300L	TRANSISTOR	1	
QR7503	UNR521200L	TRANSISTOR	1	
R1503	ERJ3GEYJ332V	1/10W 3.3K	1	
R1504	ERJ3GEYJ101V	1/10W 100	1	
R1506	ERJ3RBD103V	1/16W 10K	1	
R1507	ERJ3RBD821V	1/16W 820	1	
R1508	ERJ3RBD182V	1/16W 1.8K	1	
R1511-13	ERDS2TJ271T	1/4W 270	3	
R1523	ERJ3GEYJ822V	1/10W 8.2K	1	
R3025	ERJ3RBD153V	1/16W 15K	1	
R3026	ERJ3GEYJ105V	1/10W 1M	1	
R3028	ERJ3GEYJ471V	1/10W 470	1	
R3030	ERJ3GEYJ750V	1/10W 75	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3032,33	ERJ3GEYJ103V	1/10W 10K	2	
R3036	ERJ3GEYJ103V	1/10W 10K	1	
R3039,40	ERJ3GEYJ221V	1/10W 220	2	
R3041	ERJ3RBD104V	1/16W 100K	1	
R3901,02	ERJ3GEYJ750V	1/10W 75	2	
R3903	ERJ3GEYJ102V	1/10W 1K	1	
R3904,05	ERJ3GEYJ750V	1/10W 75	2	
R3906	ERJ3GEYJ102V	1/10W 1K	1	
R3907-09	ERJ3GEYJ750V	1/10W 75	3	
R3911,12	ERJ3GEYJ750V	1/10W 75	2	
R3915	ERJ3GEYJ912V	1/10W 9.1K	1	
R3923-25	ERJ3GEYJ750V	1/10W 75	3	
R3926	ERJ3GEYJ102V	1/10W 1K	1	
R3927-29	ERJ3GEYJ750V	1/10W 75	3	
R4001-04	ERJ3GEYJ104V	1/10W 100K	4	
R4010	ERJ3GEY0R00V	1/10W 0	1	
R4011-14	ERJ6GEYJ102V	1/8W 1K	4	
R4015,16	ERJ3GEYJ104V	1/10W 100K	2	
R4024,25	ERJ3GEYJ101V	1/10W 100	2	
R4026	ERJ3RBD153V	1/16W 15K	1	
R4027	ERJ3RBD103V	1/16W 10K	1	
R4028	ERJ3RBD153V	1/16W 15K	1	
R4029	ERJ3RBD103V	1/16W 10K	1	
R4031,32	ERJ6GEYJ102V	1/8W 1K	2	
R4037,38	ERJ3GEYJ104V	1/10W 100K	2	
R4043,44	ERJ3RBD392V	1/16W 3.9K	2	
R4045,46	ERJ3RBD622V	1/16W 6.2K	2	
R4049-52	ERJ3GEYJ103V	1/10W 10K	4	
R4059,60	ERJ3GEYJ473V	1/10W 47K	2	
R4061	ERJ3GEYJ681V	1/10W 680	1	
R4063,64	ERJ3GEYJ272V	1/10W 2.7K	2	
R4066	ERJ3GEYJ681V	1/10W 680	1	
R4069	ERJ3GEYJ221V	1/10W 220	1	
R4072	ERJ3GEYJ221V	1/10W 220	1	
R4901	ERJ3GEY0R00V	1/10W 0	1	
R4903	ERJ3GEY0R00V	1/10W 0	1	
R7401	ERJ3GEY0R00V	1/10W 0	1	
R7402,03	ERJ3GEYJ472V	1/10W 4.7K	2	
R7442	ERJ3RBD222V	1/16W 2.2K	1	
R7443	ERJ3RBD102V	1/16W 1K	1	
R7444	ERJ3RBD153V	1/16W 15K	1	
R7445	ERJ3RBD222V	1/16W 2.2K	1	
R7446	ERJ3RBD133V	1/16W 13K	1	
R7503	ERJ3GEYJ102V	1/10W 1K	1	
R7504	ERJ3GEYJ103V	1/10W 10K	1	
R7505	ERJ3GEYG153V	1/10W 15K	1	
R7506	ERJ3GEYG152V	1/10W 1.5K	1	
R7507	ERJ3GEYG562V	1/10W 5.6K	1	
R7508	ERJ3GEY0R00V	1/10W 0	1	
R7510	ERJ3RBD273V	1/16W 27K	1	
R7515	ERJ3GEYJ103V	1/10W 10K	1	
R7516	ERJ3GEYJ473V	1/10W 47K	1	
R7517,18	ERJ3GEYJ101V	1/10W 100	2	
R7519-21	ERJ3RBD822V	1/16W 8.2K	3	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R7522,23	ERJ3GEYJ101V	1/10W 100	2	
R7524	ERJ3GEYJ472V	1/10W 4.7K	1	
R7525	ERJ3GEY0R00V	1/10W 0	1	
R7526	ERJ3GEYJ332V	1/10W 3.3K	1	
R7527	ERJ3GEY0R00V	1/10W 0	1	
R7528	ERJ3GEYJ103V	1/10W 10K	1	
R7529-31	ERJ3GEYJ101V	1/10W 100	3	
R7532-34	ERJ3GEYJ473V	1/10W 47K	3	
R7535	ERJ3GEYJ511V	1/10W 510	1	
R7536,37	ERJ3GEYJ202V	1/10W 2K	2	
R7540	ERJ3GEYJ473V	1/10W 47K	1	
R7541	ERJ3GEYJ223V	1/10W 22K	1	
R7542-44	ERJ3GEYJ473V	1/10W 47K	3	
R7546	ERJ3GEYJ473V	1/10W 47K	1	
R7550	ERJ3GEYJ473V	1/10W 47K	1	
R7552	ERDS2TJ331T	1/4W 330	1	
R7553	ERJ3GEYJ103V	1/10W 10K	1	
R7556	ERJ3GEYJ332V	1/10W 3.3K	1	
R7557	ERJ3GEYJ473V	1/10W 47K	1	
R7558	ERJ3GEYJ470V	1/10W 47	1	
R7559	ERJ3GEYJ473V	1/10W 47K	1	
R7562	ERJ3GEYJ473V	1/10W 47K	1	
R7563	ERJ3GEYJ153V	1/10W 15K	1	
R7569	ERJ3GEYJ223V	1/10W 22K	1	
R7570	ERJ3GEYJ104V	1/10W 100K	1	
R7581	ERDS2TJ392T	1/4W 3.9K	1	
R7582-84	ERJ3GEYJ101V	1/10W 100	3	
R7600,01	ERJ3RBD272V	1/16W 2.7K	2	
R7602	ERJ3RBD473V	1/16W 47K	1	
R7603,04	ERJ3RBD562V	1/16W 5.6K	2	
R7605	ERJ3RBD222V	1/16W 2.2K	1	
R7606	ERDS2TJ330T	1/4W 33	1	
R7614-16	ERJ3GEYJ101V	1/10W 100	3	
R7618,19	ERJ3GEYJ101V	1/10W 100	2	
R7621	ERDS2TJ100T	1/4W 10	1	
S7501	EVQPC105K	SWITCH, REC	1	
S7502	EVQPC105K	SWITCH, PLAY	1	
S7503	EVQPC105K	SWITCH, STOP	1	
S7505	EVQPC105K	SWITCH, OPEN/CLOSE	1	
S7506	EVQPC105K	SWITCH, CH-UP	1	
S7507	EVQPC105K	SWITCH, CH-DOWN	1	
T7501	G4D1A0000094	TRANSFORMER	1	△
W601	ERJ6GEY0R00V	1/8W 0	1	
W602	ERJ3GEY0R00V	1/10W 0	1	
W603	ERJ6GEY0R00V	1/8W 0	1	
W604-06	ERJ3GEY0R00V	1/10W 0	3	
W607,08	ERJ6GEY0R00V	1/8W 0	2	
W609-13	ERJ3GEY0R00V	1/10W 0	5	
W614-19	ERJ6GEY0R00V	1/8W 0	6	
W620	ERJ3GEY0R00V	1/10W 0	1	
W621-28	ERJ6GEY0R00V	1/8W 0	8	
W629	ERJ3GEY0R00V	1/10W 0	1	
W630,31	ERJ6GEY0R00V	1/8W 0	2	
W632	ERJ3GEY0R00V	1/10W 0	1	
W633,34	ERJ6GEY0R00V	1/8W 0	2	
W635,36	ERJ3GEY0R00V	1/10W 0	2	
W637	ERJ6GEY0R00V	1/8W 0	1	
W638-40	ERJ3GEY0R00V	1/10W 0	3	
W641,42	ERJ6GEY0R00V	1/8W 0	2	
W643	ERJ3GEY0R00V	1/10W 0	1	
W644,45	ERJ6GEY0R00V	1/8W 0	2	
W646-48	ERJ3GEY0R00V	1/10W 0	3	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
X7501	H0A327200108	CRYSTAL OSCILLATOR	1	
X7502	H0D100500018	CRYSTAL OSCILLATOR	1	
n	03	VEP07A76B		(TUNER P.C.B.)
C7801	F2A1H2R2A234	50V 2.2U	1	
C7802	ECJ1VB1C333K	16V 0.033U	1	
C7803	ECJ1VB1C104K	16V 0.1U	1	
C7804	ECJ1VB1E223K	25V 0.022U	1	
C7805	ECJ1VB1C104K	16V 0.1U	1	
C7806	F2A1H3R3A234	50V 3.3U	1	
C7807	F2A1HR33A234	50V 33U	1	
C7808	F2A1V100A184	35V 10U	1	
C7809	ECJ1VF1C334Z	16V 0.33U	1	
C7810	ECJ1VB1C104K	16V 0.1U	1	
C7811	ECJ1VB1A224K	10V 0.22U	1	
C7812	F2A0J470A245	6.3V 47U	1	
C7813	ECJ1VB1H103K	50V 0.01U	1	
C7814	ECJ1VB1H102K	50V 1000P	1	
C7815	F2A1H4R7A234	50V 4.7U	1	
C7816,17	F2A1H2R2A234	50V 2.2U	2	
C7818,19	ECJ1VB1E223K	25V 0.022U	2	
C7820	F2A1H2R2A234	50V 2.2U	1	
C7823	F2A0J470A245	6.3V 47U	1	
C7824	ECJ1VB1H103K	50V 0.01U	1	
C7825	F2A1H1R0A234	50V 1U	1	
C7826	ECJ1VB1H103K	50V 0.01U	1	
D7801	MAZ4300NMF	DIODE	1	
FL7801	EFCT4R5MS5W	FILTER	1	
IC7801	AN5832SA-E1V	IC	1	
K7801	ERJ3GEY0R00V	1/10W 0	1	
LB7801	J0JHC0000032	COIL	1	
PS7801	K1KB13B00013	CONNECTOR (FEMALE) 13P	1	
Q7801	2SB1218A0L	TRANSISTOR	1	
R7801	ERJ3GEY0R00V	1/10W 0	1	
R7802	ERJ3GEYJ103V	1/10W 10K	1	
R7803	ERJ3GEYJ332V	1/10W 3.3K	1	
R7804	ERJ3GEYJ103V	1/10W 10K	1	
R7805,06	ERJ3GEYJ331V	1/10W 330	2	
R7807	ERJ3GEYJ184V	1/10W 180K	1	
R7808,09	ERJ3GEYJ331V	1/10W 330	2	
R7810	ERJ3GEY0R00V	1/10W 0	1	
R7811	ERJ3GEYJ102V	1/10W 1K	1	
R7812,13	ERG2SJ471E	2W 470	2	
R7814	ERJ3GEYJ681V	1/10W 680	1	
R7815,16	ERJ3GEYJ101V	1/10W 100	2	
TU7801	ENG6503GRF	TUNER PACK	1	
W1	ERJ3GEY0R00V	1/10W 0	1	
W2,W3	ERJ6GEY0R00V	1/8W 0	2	
W4	ERJ3GEY0R00V	1/10W 0	1	
W501	ERJ3GEY0R00V	1/10W 0	1	
W502	ERJ6GEY0R00V	1/8W 0	1	
W503-06	ERJ3GEY0R00V	1/10W 0	4	
W508,09	ERJ3GEY0R00V	1/10W 0	2	
W510,11	ERJ6GEY0R00V	1/8W 0	2	
W512	ERJ3GEY0R00V	1/10W 0	1	



Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
W513-15	ERJ6GEY0R00V	1/8W 0	3	
W516	ERJ3GEY0R00V	1/10W 0	1	
W517,18	ERJ6GEY0R00V	1/8W 0	2	
W519	ERJ3GEY0R00V	1/10W 0	1	
W520	ERJ6GEY0R00V	1/8W 0	1	
W521	ERJ3GEY0R00V	1/10W 0	1	
n	05	VEP71105A		(POWER SUPPLY P.C.B.)
C1120	ECQU2A104MLC	250V 0.1U	1	
C1121	ECQU2A103MLA	250V 0.01U	1	
C1122-24	ECKWNA102MEV	250V 1000P	3	
C1143	EEUED2V101E	350V 100U	1	
C1150	F2A1V5600013	35V 56U	1	
C1151	F1B3A182A009	250V 1800P	1	
C1152	ECJ2VC1H101J	50V 100U	1	
C1153	ECJ2VB1H222K	50V 2200P	1	
C1154	ECJ2VB1H102K	50V 1000P	1	
C1200	ECQV1H224JL3	50V 0.22U	1	
C1201	ECJ2VB1E473K	25V 0.047U	1	
C1202	ECJ2VB1E104K	25V 0.1U	1	
C1260	F2A1A821A540	10V 820U	1	
C1262	F2A1A2210063	10V 220U	1	
C1270	F2A1C681A624	16V 680U	1	
C1272,73	EEUFM1E221B	25V 220U	2	
C1274	ECJ2VB1E104K	25V 0.1U	1	
C1302	F2A1A2210063	10V 220U	1	
C1303	ECJ2VB1E104K	25V 0.1U	1	
C1401	EEUFM1E221B	25V 220U	1	
C1402-04	ECJ2VB1E104K	25V 0.1U	3	
C1405	ECJ2VC1H270J	50V 27P	1	
C1406	ECJ2VB1E104K	25V 0.1U	1	
C1407	EEUFM1E221B	25V 220U	1	
C1408,09	ECJ2VB1E104K	25V 0.1U	2	
C1410	ECJ2VB1E473K	25V 0.047U	1	
C1411	ECJ2VC1H270J	50V 27P	1	
C1412	ECJ2VB1E104K	25V 0.1U	1	
C1413	F2A1A681A540	10V 680U	1	
C1414	ECJ2VB1E104K	25V 0.1U	1	
C1415	F2A1A681A540	10V 680U	1	
C1417,18	F1J0J106A014	6.3V 10U	2	
C1421	ECJ2VB1E104K	25V 0.1U	1	
D1140	B0EDKT000009	DIODE	1	
D1151	B0HAGM000006	DIODE	1	
D1152	MAZ80910ML	DIODE	1	
D1153	MAZ4270NMF	DIODE	1	
D1155	MAZ73000BC	DIODE	1	
D1156	MA2J11100L	DIODE	1	
D1201	B0JAQE000004	DIODE	1	
D1261	B0JAQE000004	DIODE	1	
D1271	B0JAGG000005	DIODE	1	
D1305	B0JCPE000015	DIODE	1	
D1401,02	B0JCPE000015	DIODE	2	
IC1150	C0DACZH00022	IC	1	
IC1200	C0DAEMB00003	IC	1	
IC1270	C0DAZJH00003	IC	1	
IC1302	C0CBCYG00004	IC	1	
IC1401,02	C0DBAKG00007	IC	2	
IP1402	K5H3022A0013	IC PROTECTOR	1	△
L1120	G0B100E00002	COIL 10UH	1	
L1260	G0A100HA0023	COIL 10UH	1	
L1270	G0A100HA0023	COIL 10UH	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L1400	G0A220GA0026	COIL 22UH	1	
L1401,02	G0A220ZA0041	COIL 22UH	2	
L1403	G0A220GA0026	COIL 22UH	1	
LB1122,23	J0JKB0000003	COIL	2	
LB1126	J0JHC0000012	COIL	1	
LB1130,31	J0JKB0000003	COIL	2	
LB1400,01	J0JHC0000012	COIL	2	
P1101	K2AB2H000004	AC INLET	1	△
P1102	K1KB23A00002	CONNECTOR (FEMALE) 23P	1	
Q1200	B3PBA0000078	TRANSISTOR	1	
Q1400,01	B1DHDD000022	TRANSISTOR	2	
QR1300	UNR221300L	TRANSISTOR	1	
QR1302-04	UNR221300L	TRANSISTOR	3	
QR1307,08	UNR221300L	TRANSISTOR	2	
R1120	ERDS1TJ474B	1/4W 0.47K	1	
R1150	ERDS2TJ6R8T	1/4W 6.8	1	
R1151	ERDS2TJ562T	1/4W 5.6K	1	
R1152	ERDS2TJ103T	1/4W 10K	1	
R1154	ERJ6RBD562V	1/10W 5.6K	1	
R1155	ERJ6GEY0R00V	1/8W 0	1	
R1156	ERJ6GEYG183V	1/8W 18K	1	
R1157	ERJ6RBD681V	1/10W 680	1	
R1200	ERJ6GEYG393V	1/8W 39K	1	
R1201	ERJ6GEY0R00V	1/8W 0	1	
R1204	ERJ6GEYG472V	1/8W 4.7K	1	
R1205	ERJ6GEYG473V	1/8W 47K	1	
R1206	ERJ6GEYG242V	1/8W 2.4K	1	
R1207	ERDS2TJ103T	1/4W 10K	1	
R1208	ERJ6GEYG241V	1/8W 240	1	
R1209	ERJ6GEYJ102V	1/8W 1K	1	
R1210	ERJ6GEYG362V	1/8W 3.6K	1	
R1270	ERDS2TJ472T	1/4W 4.7K	1	
R1301	ERJ6RBD182V	1/10W 1.8K	1	
R1302	ERJ6RED820V	1/10W 82	1	
R1303	ERJ6RBD202V	1/10W 2K	1	
R1305	ERJ6GEYJ472V	1/8W 4.7K	1	
R1309	ERDS2TJ103T	1/4W 10K	1	
R1310	ERJ6GEY0R00V	1/8W 0	1	
R1313	ERJ6GEYJ103V	1/8W 10K	1	
R1401	ERJ6GEYJ333V	1/8W 33K	1	
R1402	D1BFR047A010	47	1	
R1403	ERJ6RBD202V	1/10W 2K	1	
R1404	ERJ6RBD203V	1/10W 20K	1	
R1405	ERJ6GEYJ333V	1/8W 33K	1	
R1406	D1BFR068A007	0.068	1	
R1407	ERJ6RBD471V	1/10W 470	1	
R1408,09	ERJ6RBD562V	1/10W 5.6K	2	
R1411	ERJ6RBD512V	1/10W 5.1K	1	
T1150	ETS28AZ1H5AD	TRANSFORMER	1	△
VA1110	ERZV10D471CS	V.R.	1	
ZA1103,04	EYF52BCY	FUSE HOLDER	2	
n	06	VEP70115A		(FRONT (L) P.C.B.)
P7001	K1KA03A00173	CONNECTOR (3P)	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
S7001	EVQPC105K	SWITCH, POWER	1	